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Disaster and Emergency Planning Guide for Health Institutions

Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP)

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Disaster and Emergency Planning Guide for Health Institutions

Prepared by

Dr. M. Türkay ESİN/Deputy Chief Physician, University of Health Sciences, Gaziosmanpaşa Training and Research Hospital

Attending Nurse Fadime YILMAZ/ University of Health Sciences, Taksim Training and Research Hospital

Contributors

Prof. Dr. Savaş Öztürk/Faculty Member, Istanbul University, Istanbul Faculty of Medicine

Prof. Dr. Zübeyde Serhan Tuğlular/Marmara University Faculty of Medicine, Marmara University Pendik Training and Research Hospital, Department of Internal Medicine, Department of Nephrology, Istanbul/ Turkiye, Turkish Society of Nephrology, Head of Renal Disaster Relief Task Force

Project Management

Istanbul Project Coordination Unit (IPCU), Governorship of Istanbul, Turkiye

K. Gökhan Elgin

Yalçın Kaya

Levent Gerdan

Aslıhan Al

Gözde Pehlivantürk Koytak

Project Coordinator and Consultancy Service

Diyalog360, Turkuaz, Eduser, Bilinçli Yaşam Ortaklığı

Project Team

Nazan Demir

İsmail Ozan Çılgın

Meral Morgül

Editorial Staff

Editorial Director: Gülçin İpek (Turkish edition)

Editor: Zuhal Nakay

Proofreading: Burcu Agalar (Turkish edition)

Graphic Application: Resul Atabay (Turkish edition), Serkan Ayraç

Illustration: Muhammet İbrahim Güzelsoy

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In 2020, “Disaster Preparedness Training Materials for Society” were rewritten under the “Society Training Modules” in line with the developing technologies, new approaches of learning, having regard to the changing conditions, regulations and laws, theories and experiences worldwide

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CHAPTER 2

Abbreviations

AFAD	Disaster and Emergency Management Presidency
AKI	Acute Kidney Injury
ASKOM	Emergency Health Services Coordination Commission
CBRN	Chemical, Biologic, Radiologic, Nuclear
CPR	Cardiopulmonary Resuscitation
DECT	Digital Enhanced Cordless Telecommunication
DHA	Department of Humanitarian Affairs
EADRCC	Euro-Atlantic Disaster Response Coordination Centre
EADRU	Euro-Atlantic Disaster Response Unit
ERP	Emergency Response Plan
HAP	Hospital Disaster and Emergency Plan
HAZMAT	Hazardous Materials and Items
HFA	Hyogo Framework for Action
HGM	General Directorate of Communication
IDNDR	International Decade for Natural Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societie**s**
IL-SAP	Provincial Health Disaster and Emergency Plans
IMS	Incident Management System
IMT	Incident Management Team
ISDR	International Strategy for Disaster Reduction
ISKG	Occupational Health and Safety Law
ISN	International Society of Nephrology
MDG	Millennium Development Goals
NATO	North Atlantic Treaty Organization
NGO	Non Govermental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Co-operation and Development
RDRTF	Renal Disaster Relief Task Force
SOP	Standard Operating Procedure
SWOT	Strengths, Weaknesses, Opportunities, Threats
TAMP	Turkish Disaster Response Plan
TDN	Turkish Society of Nephrology

UDSEP	National Earthquake Strategy and Action Plan
UMKE	National Medical Rescue Team
UN	United Nations
UNDAC	United Nations Disaster Assessment and Coordination
UPS	Uninterruptible Power Supply
YORA	Reduction of Non-structural Risks

How to Use This Guide?

The Disaster and Emergency Planning Guide for Health Institutions is a guide prepared by healthcare experts with field experience in order for the reader to better understand and implement the Hospital Disaster and Emergency Plan (HAP).

The Guide consists of two main parts: The first part deals with detailed steps of disaster and emergency planning for health institutions under the headings of Prevention and Mitigation, Preparedness, Response and Recovery. And the second part includes Communication during Disaster and Emergency, Training Practices, Drill Practices and Management of Patients Who Require Dialysis Treatment in Disaster and Emergency.

The situations likely to occur during a disaster are many and various. The consequences can be complex and difficult to anticipate. This Guide presents those basic principles and concepts of disaster and emergency planning that health institutions can develop before, during and after a disaster to mitigate the impact of a disaster, minimize the level of interruptions and disruptions and maintain services. The Guide also covers regulations, matters of communication and participation as well as the role of different health system units that they play in coping with such disasters which directly target human health such as epidemics. *Disaster and Emergency Planning Guide for Health Institutions* aims at guiding and assisting individuals and organizations in the health sector to learn about their competencies and capacities to support the community before, during and after disaster and emergency. They also include government agencies, provincial and district municipalities, emergency management centres, NGO's, private sector and volunteers. This Guide is also a useful resource for educators, planners, entrepreneurs or private sector involved in or interacting with the health system.

The *Disaster and Emergency Planning Guide for Health Institutions* provides information for hazard analysis, risk analysis, disaster scenario, drill, hazard hunt, structural and non-structural risk analysis, correct response modes, evacuation, incident-specific plans for CBRN incidents, incident management system and similar technical expertise, thus supporting preparation of HAP in the most optimum and applicable way.

The objective is to enable the target group to develop principles of assessment and planning for disaster and emergency mitigation; formulate strategies and policies; ensure that the institutions they are affiliated with, evaluate the infrastructure in this respect; recognize methods and techniques for participation and learn how they are applied. In addition to all these, it also aims at developing a strategy against the factors that increase the risk of disasters and emergencies. Furthermore, it is a matter of improvement of awareness level as well.

Presentation

Today while the rapid advancement of technology and industrialisation has led to large population mobility and formation of metropolitan life, it has also paved the way for major developments and huge investments in the health sector by providing wide opportunities for human health. In this process, it has become necessary for many disciplines to work together and in harmony to provide health services. Hence complex and synchronised structures have been formed in health service centres, especially in hospitals.

In previous centuries, disasters were mostly related to natural events such as earthquakes and floods, whereas today, many new and global disaster types such as technology and human-induced industrial accidents, wars, social migration movements, greenhouse effect have emerged. As a result, health services to be provided for disasters today have become both diversified and complex.

It is of vital importance that the health services during a disaster are not interrupted. While other public services can be temporarily suspended or slowed down during disasters, the burden of the health sector increases more than the existing one and comes under time pressure. In order to protect itself against all kinds of disasters that may be effective at city, region or country level and continue its services by increasing, the health sector andespecially hospitals should be ready for disasters and emergencies.

Accordingly, all kinds of problems such as disruptions, damages, personnel and material shortages that may occur during a disaster should be assessed in advance and possible solutions should be planned. Disaster should not only be considered as flood or earthquake, but power failure, logistic disruptions, epidemics, CBRN threats and social events that affect the provision of health services should also be considered as disasters; possible risks should be identified and solutions should be recorded. In the face of these needs, it is understood that hospitals should make a plan for disasters and emergencies, record how they will respond and how they will provide maximum service with the least damage, and direct the solutions for what required to be done during the event by means of such a plan.

The most important element of hospital management is crisis management! However, it should not be forgotten that the success of hospitals in disaster management is related to their daily management knowledge and experience as well as, presumably to a greater extent, their preparedness for disaster situations. Consequently, this Guide has been prepared to show the planning of solutions for mitigation, preparedness, response and recovery phases to the people responsible for the management of the hospital at the time of the event and to minimise the problems that may occur during the implementation. One of the most significant features of this Guide is that the authors who contributed to the preparation of it have filtered their experiences in many disaster environments over the years and transferred their existing knowledge and

experience to the reader and thus prepared the Disaster and Emergency Planning Guide for Health Institutions with this broad perspective.

I hope this study will be useful for our health community and people working in this field.

Prof. Dr Savaş ÖZTÜRK
Faculty Member, Istanbul University, Istanbul Faculty of Medicine
Former Chief Physician of Haseki Training and Research Hospital of Ministry of Health
Former Chief Physician of Gaziosmanpaşa Taksim Training and Research Hospital of Ministry of Health

Foreword

Dear Readers,

Looking at the history of our country, we see many problems such as earthquakes, floods and epidemics that we have faced for many years and we are used to living with them. As a country that has lost many people and suffered great material and moral loss in the disasters so far, we should not forget that such loss will continue to increase as long as we do not make the necessary preparations or take the necessary measures.

In this process, our metropolises, which have become more and more dense, and our industrial facilities settled around these cities continue to increase our loss in terms of material, moral and human health in case of a possible disaster. In consequence, the Marmara earthquake in 1999, which also affected Istanbul, the largest metropolis of the country, was a noticeable warning. After this date, disaster preparedness and disaster awareness have been responded increasingly in the society.

After 1999, the Ministry of Health also started to see the topic of disaster from a different perspective, switching to a rapid response period by adding new ones to its organizations in this direction. While the idea of sending healthcare teams to disasters came to the forefront at first İn the process that started with the establishment of UMKE (National Medical Rescue Team), the supply of the materials needed by the teams in time and the establishment and activation of mobile hospitals by transporting them to the incident area came to the agenda in the following period.

Within the framework of these developments, although sending mobile hospitals and teams to the disaster area are short-term and important solutions, it is understood that the main problem is how health institutions in disaster-prone areas will continue to provide services after the disaster.

Civil defence plans should be prepared in accordance with the Civil Defence Law 7126 to ensure that institutions survive with minimum loss in case of enemy attacks, natural disasters and fires, maintain their operability, protect their personnel, provide emergency repair and improvement when necessary, and ensure mutual assistance and cooperation in case neighbouring institutions face the same situation. In order to guide the preparation of these plans, the General Directorate of Civil Defence, Ministry of Interior published the "Guide on Civil Defence Works for Departments and Institutions" in 2003.

The Ministry of Labour and Social Security published the "Regulation on Occupational Health and Safety Services" and the "Regulation on Emergencies at Workplaces" for workplaces within the scope of the Occupational Health and Safety Law No. 6331 of 20 June 2012. And a guide was published by the Ministry of Labour and Social Security in 2017 as provided by the related law on how to make the disaster plan that should be prepared according to the results of the risk analysis

reports drawn up at the workplaces, but this report alone is not sufficient in the preparation of disaster and emergency plans for hospitals. It is still of great benefit for persons and commissions preparing a hospital disaster plan or emergency action plan to examine this Guide.

The fact that many branches of technology are involved in today's hospital management, the importance of hotel management services, the logistical requirements for hospital medical supplies and equipment, and most importantly, the fact that hospital employees have to continue their lives in the disaster area, emerge as a serious planning requirement. For meeting this need of planning, it has been decided that all health institutions should use the same template throughout Turkiye to determine their risks and create their plans against them.

The "Preparation Guide for Hospital Disaster and Emergency Plan (HAP)" was published in 2016 by the General Directorate of Emergency Health Services, Ministry of Health, to satisfy the need for increasing physical and functional disaster preparedness and resilience of hospitals and developing institutional structuring, business and operation standards to ensure strategy and implementation integrity in disaster response activities.

However, many hospital disaster plans that we have examined for years as part of our duty have shown that most risks are overlooked or other template plans are used while preparing the plan, unless a detailed training is provided on the subject and the people taking part in the plan Preparation Commission are sufficiently informed about disasters and emergencies during these trainings.

In the commission meetings on preparation of HAP and in-hospital trainings held with many health institutions it has been observed that especially risks are not fully understood, precautions are taken hesitatingly, plan drills are mostly far from applicability and may cause serious disruptions in case of disaster. The main purpose of the preparation of the *Disaster and Emergency Planning Guide for Health Institution*s is not to make any additions to the existing *HAP Regulation or HAP Guide,* it is, on the contrary, to make the guide and regulation of 18 March 2020 are more understandable and realistic, and hospital disaster and emergency plans are made in such a way that they would be useful during a disaster and minimise our loss.

For this reason, the content of the Guide aims to share our many years of experience in hospitals, especially during disasters, in addition to the sample standard operation plans, workflow instructions and forms that the readers will need. When writing the Guide, we have tried to provide explanations and solutions for many questions you may have. Our main objective is to adapt and use in the Guide the various sample plans made by other hospitals or units and to diversify and increase their number.

The most important point that we should take into account is that the best way to minimise the loss and damages in disasters and emergencies besides all these planning and preparations is to ensure that the drills are realistic and the trainings given to the personnel are taken seriously and renewed through frequent repetitions. Failure to give enough importance especially to personnel trainings causes the plans to turn into a paper file that remains only on the shelf in the long run. In

drills, the main purpose is not to carry out a complete drill, but to determine the problems to be experienced during the implementation of the plan and make a guiding practice for the subsequent plans. It should never forget that a planning with weak training and drill phases will not be of any use in the face of a real event.

Wishing you success in your work with the hope that it all healthcare workers and healthcare managers can benefit from it.

Dr. M. Türkay ESİN
Deputy Chief Physician / University of Health Sciences, Gaziosmanpaşa Training and Research Hospital

Introduction

In any disaster and emergency situation, our eyes first look for ambulances and healthcare personnel. Whatever the extent of the incident, their presence instils hope that lives can be saved and wounds can be healed. Perhaps for this reason, we never question our belief that they will not be affected in any way by what is happening and that they will be ready to help at any time. However, while our country faces natural disasters because of its geographical location, it frequently experiences disasters caused by human such as industrial accidents, major transport or CBRN accidents and social events. As it is, the healthcare system and its employees face the same threats and risks, but unlike us, they have to succeed in maintaining their position as the centre of trust in extraordinary situations and overcome the extremely heavy workload.

In consequence, it is very important that the healthcare sector in particular, together with all segments of society and related sectors, make effective, permanent and sustainable efforts to mitigate the risks of disasters and emergencies, be prepared for them and mitigate possible loss. As one of the prominent components of the health sector, hospitals are not just any workplace, the service provided at them is of vital importance. As mentioned above, whatever be the extent of the disaster and emergency, hospitals should continue to provide healthcare services without interruption. In order for health institutions to continue these vital tasks, they need to work effectively and prepare comprehensive plans before the events occur. Only in this way they can be more resilient and prepared for disasters and emergencies.

Istanbul, the largest city in Turkiye, is one of the few metropolises of the world with a population about 20 million people. The city is an elongated settlement, 150 km in length and 50 km in width, covering an area of 5.000 km from north to south surrounded by the sea. This feature constitutes an obstacle in front of fast and easy transportation by road in case of any disaster and emergency. Furthermore, this mega city covers about a quarter of the total population, accounting for about 40% of the country's economy. Considering that more than half of the city's surface area is green areas and low-density residential areas, it is seen that a serious population and a serious economic potential have settled in a very narrow central area.

Naturally, the presence of such a large population and economic power in such a narrow area makes Istanbul more vulnerable to all kinds of natural, human and technological hazards. Especially the fact that the West Marmara Fault, which is expected to cause an earthquake of 7-7.5 magnitude, passes right next to the city, increases the risks on it even more. After the 1999 Marmara earthquake, the predictions of scientists that a 7.5 magnitude earthquake will occur with a probability of 60% within 30 years brings up the possibility that this risk is big enough to affect Turkiye as a whole.

At this point, we need to explain the concept of disaster a little more. Disaster does not define any event itself, but the impact of its consequences on societies. While a 7-magnitude earthquake is not considered as a disaster when it occurs in the middle of the ocean because of the lack of a settled population, it is a disaster for a community when it occurs in a settlement centre. Similarly, while temperatures of -20 and -30 degrees in Siberia or Alaska are not considered as disasters, the same weather conditions are considered as disasters for Istanbul. In consequence, an event can be defined as "ordinary situation", "extraordinary situation" or "disaster" depending on the region where it occurs. The determinant here is the vulnerability rate of the population to be affected by the consequences of the event.

According to another definition, the fact that an institution, region, city or country cannot solve the problem with its own means and needs external assistance to correct the consequences of the event causes the event to be called a disaster. A house fire can, for example, be considered as an emergency for family members. However, a hospital fire is a disaster for the institution; but still it is not a disaster that concerns the whole city. In the case of earthquakes, while the event is called a disaster for the city where the earthquake occurs, it is not a disaster for the country, but an extraordinary situation. When the Istanbul earthquake occurs with a magnitude of 7-7.5 as expected, it will be a disaster for Turkiye and perhaps a disaster that will require international aid.

In the light of these data, the situation of hospitals is of greater importance. Bearing a serious burden in all kinds of events, hospitals assume an even greater responsibility in disasters and emergencies. While other institutions may cease to provide services in extraordinary situations, the burden of the healthcare system increases even more. For example, in case of extraordinary situations such as floods, earthquakes, wars and epidemics, schools, government offices and privately owned businesses can be closed down if needed and can be put into service later; however, the situation in the healthcare system is the opposite. Even in environments where all institutions are closed, the healthcare system has to continue to provide service and even increase the service it provides.

In consequence, the *Disaster and Emergency Planning Guide for Health Institutions* firstly defines the disasters and it presents how to make the planning that will enable healthcare institutions to continue their activities in case of disasters according to their location and in a way to respond to the needs and which issues will be taken into consideration as a priority through possible problems, solutions and various examples.

Current Status

The content of the Regulation on Implementation of HAP (Hospital Disaster and Emergency Plan) and the *Disaster and Emergency Planning Guide for Health Institutions* overlap, because the purpose of this Guide is to provide a better understanding of the current HAP and eliminate the deficiencies in its implementation. The authors of the Guide have examined the majority of hospital disaster plans in the city of Istanbul since the day hospital disaster and emergency plans started to be implemented, addressing these issues at the Guide Preparation Workshop held in Urla, Izmir together with representatives from other provinces in order to prepare the *HAP Preparation Guide in* 2014 to correct any deficiencies and misunderstandings identified. Although some improvement has been observed in the hospital disaster and emergency plans prepared in the provinces after publication of the Guide in 2016, it has also been observed that some problems still persist in the new plans and our aim is, therefore, to present the issues to the readers in more detail, showing related examples.

The following deficiencies were noted with respect to HAP:

- HAP Implementer Trainings are given by the Provincial Directorate of Health pursuant to regulation. However, both private and public hospitals in Istanbul have difficulty in meeting the training requirement of the relevant personnel.
- The personnel participating in the training may consist of people other than the personnel in charge of HAP.
- When the personnel participating in the training are transferred to another location or at the end of their employment contract, their duty ends.
- The content is sufficient, but the trainings do not achieve the desired results because of various reasons.
- The plan is supposed to be prepared by a commission, but because only one or two people are interested in the subject, most of the management is not informed about the plan.
- The personnel and employees assigned to the plan may not be aware of the content of the plan.
- Plans prepared theoretically make it very difficult to implement in practice.

The objectives of the Disaster and Emergency Planning Guide for Health Institutions with respect to such deficiencies are to:

- Convey the importance of the matter to all healthcare personnel in an easy and understandable language;
- Ensure that they have a general understanding of the content with the help of visuals and tables;
- Emphasise the importance of practical training;
- Guide the implementation of theoretical knowledge in practice and thus provide a complementary resource to the HAP.

Legal Framework and Legislation

The "National Earthquake Strategy and Action Plan" (UDSEP) made by the Presidency of Disaster and Emergency Management (AFAD) and published in the *Official Gazette* No. 28029 of 18 August 2011, reads that "Provincial health disaster plans will be developed in all provinces to ensure timely, rapid and effective response to health problems that may be caused by disasters". The Ministry of Health published the IL-SAP directive on the implementation ssubsequently on 27 August 2013. After the integration of the Provincial Health Disaster Emergency Plans (IL-SAP) with the Turkish Disaster Response Plan, they are named as Health Service Group Plans under the Provincial Disaster Response Plans.

Emergency plans should be prepared according to "Occupational Health and Safety Law" No. 6331 and "Regulation on Emergency Situations in Workplaces". Furthermore, emergency plans should be made pursuant to the "Civil Defence Law" No. 7126 and the "Regulation on Personal Liability, Evacuation and Dilution, Planning and Other Services Related to Civil Defence", "Regulation on Organization and Measures Related to Civil Defence", "Civil Defence Works Guide for Departments and Institutions".

Pursuant to the "Regulation on Disaster and Emergency Response Services" published in the *Official Gazette* No. 28855 of 18 December 2013 and the "Turkish Disaster Response Plan" (TAMP) prepared on the basis of this regulation and published in the *Official Gazette* No. 28871 of 3 January 2014, the preparation of disaster and emergency plans in hospitals has become mandatory. In accordance with the "Hospital Disaster and Emergency Plan (HAP) Implementation Regulation" published in the *Official Gazette* No. 31072 of 18 March 2020, hospitals are required to prepare a Hospital Disaster and Emergency Plan.

Disaster Management in International Area

It is an undeniable fact that the number and extent of disasters and emergencies have increased significantly today and especially in recent years. There are two main reasons of it: The first reason is that the world population of more than seven billion has moved away from the rural areas and flew to the cities where industry and trade are concentrated, resulting in considerably increased loss of life and property during disasters and emergencies in these regions. The fact that the population in the cities has increased 20-50 times compared to a century ago and that they started to host different races and nationalities with globalisation has expanded the potential of disasters and emergencies to cause damage. The second reason is that the number of people affected by disasters and emergencies has increased significantly with the proliferation of human-induced technological accidents as a result of industrial and technological developments in the last century and the wars bringing about greater destruction.

Today, we seen that natural disasters, wars and technological accidents do not remain within the borders of a certain city, region or country. The environmental damage caused by the collapse of the waste dam of an industrial facility in an accident in one of the Eastern European countries, for example, affected all neighbouring countries along the Danube River as well as the countries bordering the Black

Sea. Likewise, the nuclear power plant accident in the city of Chernobyl had very serious effects on human health in Europe and Turkiye, which have lasted till today. And, finally, the suspension of international flights because of ash and dust particles in the air after the eruption of a volcano in Iceland is another example of an international disaster.

Furthermore, the fact that a general drought has started in the world because of global warming and that many people migrate to other countries because of this drought has started to cause a large-scale international disaster problem. As it is obvious from all these examples, current disaster problems cannot be solved by a particular city, region or country alone. As it is, international organizations have started to act together on disasters through various activities, conferences and decisions.

In the previous years, preparedness for disasters concentrated on the works to be carried out after the disaster and included plans on how to rescue people after a destruction, how to repair the damage and, eventually, how to start normal life. Today, however, it has been observed that preapredness before disaster minimise these damages and reduce the loss of life and costs to much more tolerable levels. In consequence, in the "Disaster Management" approach, greater importance has been given to risk reduction before disaster and it has been decided that the main energy should be directed here. Some European countries, which frequently face disasters caused by nature and technology, also benefit from disaster risk management systems like the USA, Japan and New Zealand.

Because of the magnitude of human and material damages caused by disasters today, international organizations have also started to get involved in the issue of disasters, seeking solutions in their own fields of work. World Bank, United Nations, IFRC Confederation of Red Cross and Red Crescent Societies, Organization for Economic Co-operation and Development (OECD) and Islamic Development Bank can be seen as example for such organizations.

As it is understood that actors and disciplines at international, national and local level should act together to be successful in reducing disaster risks, basic policies and action plans are being drawn up in this direction. The most important of these activities include:

- "International Decade for Natural Disaster Reduction (IDNDR)" from 1990 to 2000 and United Nations (UN) Resolution 42/169 (1987)
- "Yokohama Strategy and Action Plan for a Safer World" (1994)
- "UN Millennium Development Goals" (MDGs) (2000)
- "International Strategy for Natural Disaster Reduction" (ISDR) (2000)
- "Conference on Disaster Risk Reduction", "Hyogo Declaration" (2005) and "Hyogo Framework for Action" (HFA) (2005-2015)

- "Building the Resilience of Nations and Communities to Disasters" and "Global Platform for Risk Reduction" (2007)

Hence, in various conferences and meetings where national action plans are discussed, it has been recognized that reduction of risk is the most important component of disaster management, because it is understood that **Risk Reduction** approaches can prevent major destruction caused by disasters. Despite of some differences in terms of principles and management, the following principles have been generally accepted in various international meetings:

- It is necessary to inform and engage the society about all processes in order to increase the effectiveness of disaster mitigation;
- Responsibilities of all management levels and units in reducing disaster risks should be defined and they should be included in the action plan to be made;
- A key priority should be given to development of capacity to respond to disaster in order for current mitigation efforts to be successful;
- National governments should be particularly responsible to implement measures for mitigation of disaster risks;
- The countries should include the mitigation of disaster risks which pose a serious threat in their respective development plans;
- Mitigation studies should be examined by taking into consideration all risk factors at national, regional and local scales analysed in a general;
- Mitigation of environmental and regional risk factors should be approached from a global perspective, remembering that countries without neighbouring borders can also be affected by risks.

As globalisation is increasing rapidly today, it is recognized by all countries that nations should cooperate for mitigation of disaster hazards, risks and damages. To stand against disasters is only possible for the countries by acting together at international level and supporting each other.

International Framework

Response to disasters is primarily the duty of national governments. In line with this responsibility, national governments have legal and institutional arrangements related to disasters. However, in case of large-scale disasters exceeding the response capacity of the countries, aid teams of international organizations in different countries may take part in the response upon the call of national governments. In an environment which is already complex because of the nature of the disaster (e.g. high number of dead and injured people, disaster victims waiting for rescue, collapse of infrastructure systems, necessity of fast and timely response, failure of communication and transportation systems, etc.), access to the region by a large number of domestic and foreign aid organizations may make this process even more complex and unmanageable. It is, therefore, necessary to be very well organised and prepared.

A) International Legal Arrangements and Organizations Regarding Disaster Legislation

Agreements, decisions and principles on direct disaster measures and assistance:

- "Declaration of Principles for International Humanitarian Relief to Civilian Population in Disaster Situations", Resolution of the 1. International Red Cross-Red Crescent Conference (1969).
- "Precautions to Accelerate International Relief"; Resolution of the 23. International Conference of the Red Cross and Red Crescent and UN General Assembly Resolution A/RES/32/56 (1977). (Not binding, but it is implemented.)
- "UN Emergency Humanitarian Relief Guidelines", UN General Assembly Resolution A/RES/46/182 (1991). (Not binding, but it is implemented.)
- "Tampere Convention on the Provision of Telecommunication for Disaster Mitigation and Relief Operations" (1999). (It is the most comprehensive regulation on the regulation of telecommunications in international disasters. Turkiye has not signed and is not a party to it).
- "Strengthening the Effectiveness and Coordination of International Urban Search and Rescue Assistance", UN General Assembly Resolution A/RES/57/150 (2003).
- SPHERE Project: Humanitarian Charter and Minimum Standards in Humanitarian Response. (Revised in 2000 and 2004. It is a project participated by Turkiye and carried out by the Ministry of Health).

B) Disasters and International Organizations

Many official and voluntary organizations carry out independent and coordinated activities in the fight against disasters at international level:

- Official Organizations:
  - UN System
  - NATO
- Voluntary Organizations:
  - Red Crescent and Red Cross
  - Other voluntary organizations

C) Primary and Basic Organizations

- United Nations 222 UN-DHA/OCHA United Nations Office for the Coordination of Humanitarian Affairs and UNDAC United Nations Disaster Assessment and Coordination
- IFRC International Federation of Red Cross and Red Crescent Societies
- NATO EADRCC Euro-Atlantic Disaster Response Coordination Centre / EADRU Euro-Atlantic Disaster Response Unit

Why is Disaster and Emergency Planning Important for Health Institutions?

Disasters and emergencies may, on the one hand, create an extra burden on the health system because of their physical, psychosocial and economic effects on the society, and they may, on the other hand, bring a system, already overburdened with its own resources, to a standstill. **The main objective of the large and complex health system, together with the different disciplines it comprises, is to make healthcare services operational and accessible throughout the country.** Hundreds of thousands of people are employed in institutions that serve as medical practices, health centres, clinics and large regional hospitals. When disasters and emergencies occur, people need the support of the health system more than ever, many existing services deteriorate because of the direct impact or disruption of disasters and emergencies on the health system. Disaster and emergency planning is, therefore, of particular importance for health institutions. It is summarized by examples below how previous disasters and crises in our country have affected health institutions.

Disasters and Crises Affecting Health Institutions in Turkiye

Earthquake is the first type of disaster in our country in terms of loss of both life and property. The most destructive earthquakes since 1980 and those that caused the most material damage include earthquakes of Erzincan (1992), Marmara (1999), Düzce (1999), Van (2011) and Kahramanmaraş (2023). When we look at the effects of disasters on the health system, the inability to provide access to health institutions after the damages, loss of health personnel, situation of health personnel who lost their relatives, and structural and non-structural damages to health institutions appear as the most important issues.

In 2004, 122 hospitals were damaged in Indonesia because of the tsunami, 7 out of 13 hospitals damaged in the 1999 Marmara earthquake were recorded as heavily damaged, and, in the 2011 Van earthquake, the university hospital was unable to provide health services because of structural and non-structural damages. In the 1985 Mexico-City earthquake 1,000 people and in the 1992 Erzincan earthquake 20 people lost their lives because of damage in hospitals.

It is known that after disasters and emergencies, especially in the first 72 hours called as "golden hours", disruptions in the service of health institutions cause easily treatable health problems of disaster victims to grow, causing disability and loss of life.

In the 1999 Düzce earthquake, many disaster victims died because of food aspiration (food getting into the trachea) due to failure of medical service which could not be given as a result of the collapse of the state hospital building. Likewise, in the 1992 Erzincan earthquake, the damage to the hospital building and the collapse of the nurses' boarding building both caused the loss of the health personnel who would provide service, resulting in transfer of the disaster victims to very long distances. It is known that health services that cannot be provided especially in the first moment increase the number of injuries and deaths at a very high rate.

It has been found out that there were serious disruptions in health services as a result of the damage to health facilities and employees in the disasters worldwide after 1980 and it has also been observed that the health service that cannot be provided most of the time causes more disability and death than the effect of the disaster. In consequence, after the 1999 earthquake, the idea to establish **UMKE** (National Medical Rescue Team) for providing on-site service in disaster areas and supporting health personnel who are unable to work started to emerge in our country. When it was implemented in 2004, the first response was made at the site of the incident and the disaster victims were provided with health services during the period from the scene of the incident before they were brought to the health institution. In the following years, mobile hospitals sent to the disaster area together with UMKE started to provide services in case of damage to the institutions providing health services in disaster areas. It has been observed that the indoor space, medical equipment and patient care areas to be needed by the teams serving especially in areas without health facilities are provided very quickly in this way.

In September 2009, during the flood disaster in Istanbul, Silivri State Hospital, Selimpaşa State Hospital and Çatalca State Hospital, located in the western part of the city, were out of service on the same day because of excessive rainfall, resulting in significant disruptions in the health services provided in the region. Although there was no loss of buildings or health personnel in this incident, health services could not be provided for a certain period of time due to the failure of electrical systems in all three buildings as a result of the flood.

A similar problem was experienced during the Syrian refugee crisis when a large number of patients and injured people from border cities were transferred to other cities via Kilis State Hospital. The hospital was planned for a population of 120,000 people, but as a result of the flow of Syrian migrants and the wounded from the civil war, it was observed that there were major problems in the provision of health services. A mobile hospital was set up both at the border gate and in the garden of the state hospital in order to overcome this problem and UMKE personnel were transferred there to provide support.

Epidemics are also among the most important disasters that disrupt the health system to a great extent, preventing the provision of health services. During the Covid-19 pandemic, which also affected our country, serious disruptions were experienced in the health systems of all countries. In particular, the fact that hospitals in Italy came to the point of collapse during the epidemic showed how the facilities planned for a certain population had difficulties in the face of excessive patient applications

in epidemics. The main features that distinguish epidemics/pandemics from other disasters consist of disruptions such as supply problems because of excessive consumption of a certain group of medicines, difficulties experienced by the personnel working in the health facility regarding the protective clothing to be worn, hospitalisation problems on account of insufficient bed capacity to meet the sudden increase in the number of patients, and morgue capacity problems arising from high number of casualties.

The possibility of being subject to harm themselves or their relatives because of the same disease also negatively affects the motivation of the personnel working in health institutions. It was observed that the feeling of hopelessness and helplessness, caused by the long duration of the epidemic process and its spread throughout the country, increased within days and weeks. As the health personnel working in other regions cannot come to support in epidemics which spreades throughout the country, it also makes the situation more troublesome. In such large-scale epidemics, solutions such as recalling retired employees to duty, engagement of student health personnel in the service or providing more health personnel by transferring the work that can be done by people outside the health institution to volunteers are issues that should be emphasised in advance in accordance with the Hospital Disaster and Emergency Plan. In such cases, how medical students, nursing school students, dentists, veterinarians, private health institution employees and military personnel will be utilised should be planned during the studies about Hospital Disaster and Emergency Plan. Most of these practices have been implemented in various countries worldwide in 2020.

Even if there is no structural damage after a disaster and emergency, the unwillingness of disaster victims to enter the buildings after earthquake causes serious bottlenecks in the health system. The loss of life as a result of the collapse of a hotel and some public buildings as a result of aftershocks after the Van earthquake is one of the saddest examples in this regard. The experience has shown that even if there is no structural damage, health services should be provided outside the building after a disaster and emergency. In consequence, it should be foreseen during the Preparedness Phase of the Hospital Disaster and Emergency Plan that the buildings may not be used after disaster, the indoor space that may be required outside the building should be determined and measures should be taken in matters such as lighting and electrical utilities for devices. To this end, hospital gardens or empty lands and parks in the nearby area should be reviewed and planning should be made considering that health services can be provided in these areas.

As it is known from many similar examples, the workload of the institutions that have to provide health services in the disaster and emergency environment increases even more. In consequence, health institutions should make their preparations by considering the most extreme possible risks in their disaster and emergency plans. It should be assured that the disaster and emergency plan is realistic and applicable and no detail should be omitted. Today, the biggest problem in this respect is that people ignore the possible risks and find the preparations for disaster and emergency unnecessary and extravagant. Societies showing such negative approach unfortunately pay the heaviest bills of disaster and emergency damages in the end.

As mentioned earlier, disasters are events that individuals, organizations or countries cannot overcome with their own means and require external assistance. These events may reduce the quality of life of individuals and may cause them to face different threats and even lose their lives. In consequence, it is not a correct approach to reduce the definition of disaster to earthquakes only.

Irregular migrations, meteorological events (such as extreme temperature increase or decrease), epidemics and extensive power outages may, for example, qualify as disasters for institutions or certain communities as well. In the case of earthquakes, as many of these events can affect a community at the same time, preparedness requires more comprehensive planning, management and recovery activities.

Accordingly, it should be well known how the system works in disasters and emergencies, where failures may occur and which secondary problems these failures may bring along and lead to bigger problems, and solutions should be produced on these issues. If we liken the system we are in to a vehicle, we should not forget that a malfunction in any part of the vehicle may lock the whole system, possibly costing many lives. **In consequence, the components of the whole system should be considered for disasters and emergencies, and it should be determined how the failure that may occur in each of them can be prevented, and if it cannot be prevented, how it can be corrected one by one should be determined and solutions should be planned.**

The health system remains the most important element in disasters and emergencies. In a disaster environment, individuals may give up or postpone some of their needs; however, their needs for health services increase still more and especially emergency health services are of vital importance.

It is recognized by all health authorities that if adequate health services are not received within the golden hours (first 72 hours) after a disaster or emergency when about half of the disabilities and casualties occur and if this period is not used well, the improvements to be made later prove to be useless. Unfortunately, the subsequent provision of health services, doctors, medicines and the like, which cannot be delivered in the first 0-72 hours after the incident, cannot correct the sad results.

As the most important link of the health system, hospitals stand out with their complex structures and different components. Accordingly, the following basic issues should be taken into consideration in the aftermath of disasters and emergencies:

- **Meeting the electricity and water needs of the hospitals without interruption:** It can, for example, be planned to open artesian wells in suitable hospital gardens to meet the water needs in case of a disaster and to keep these wells in service by operating them for 1 hour every month.

- **Transportation of healthcare personnel to the hospital:** In the pre-disaster planning phase, for example, it can be decided that the hospital personnel will be collected from certain points of the city and brought to the centre and a preliminary protocol can be made with provincial or district municipalities for ring service and thus it can be planned that the healthcare personnel will reach the institution only through these points.
- **Health personnel continuing their duties with their problems related to their families solved already:** The employees will be able to access their institutions faster and work more peacefully by feeling themselves and their relatives safe if, for example, areas such as tent areas or undamaged school buildings near the hospital are designated for the children or relatives of the health personnel for major disasters and an organization for the care of children in these areas is included in the hospital disaster plan.
- **Ensuring structural safety of the health facility and the solidity and safety of the places that will provide service:** Implementing, for example, the necessary regulations and measures for completed buildings in line with the reports to be received from relevant institutions and adding this information to the plan will increase the employees' sense of trust in the institution.
- **Provision of medical supplies and equipment necessary for continuation of health services:** Preliminary preparedness work can, for example, be carried out to establish a platform that will enable the inter-institutional exchange of surplus materials in the hands of these institutions by working together with nearby health institutions in the province or the transfer of intact materials to other institutions in case of damage to buildings.
- **Satisfaction of the food hygiene and clothing needs of the personnel, patients and accompanying persons:** The plan, for example, should include arrangements regarding the provision of materials such as patient gowns, operating room gowns in the laundry and storages of the hospital to the personnel and patients in need.
- **Precautions against the number of applicants to health institutions exceeding the capacity in disasters and emergencies:** Precautions to be taken against the increase in capacity are discussed in detail in the relevant section of the Guide (see Chapter 1, Medical Capacity).
- **Accurate and realistic planning to overcome the first 0-72 hours/golden hours phase with minimum damage.**

Remember that the slightest mistake or deficiency in all these basic issues may lead to serious consequences for healthcare professionals and their relatives as well as disaster victims. With the help of the headings addressed in this Guide, it is explained through examples where these disruptions may occur, which issues may be ignored and which ones should be paid special attention. The Guide only provides a general approach and warns about the health system. Each health institution should develop and customise this information according to its own needs and change it when necessary.

Chapter I
Disaster and Emergency Planning for Health Institutions

Step 1

Prevention and Mitigation

General Information

To provide healthcare services, hospitals have to collect and coordinate the operations performed separately by many institutions under a single heading, not only in extraordinary situations but also in their normal working routine. None of these operations can be skipped or left to preference. Hospitals have to provide catering services for employees, inpatients and their companions while providing hotel services. Likewise, hospitals have to provide surgical equipment and medicines for treatment services as well as energy for air conditioning, lighting and medical procedures. In case of disasters and emergencies, hospitals are also responsible for providing psychological support services to patients and employees in addition to security and transport problems.

The number of these and similar duties can be increased. While it is difficult for hospitals to fulfil the services mentioned above even in normal times, the scope and intensity of the services to be provided in disasters and emergencies increase even more and the means to respond to them decrease to the same extent.

As it is impossible to find solutions to these problems in a narrow timeframe under pressure and with limited possibilities after disasters and emergencies, it is a necessity to prepare hospital disaster and emergency plans in advance. Like all institutions, hospitals should also be prepared for the event in advance by making comprehensive studies in before disaster and emergency and by providing trainings to employees/ personnel.

Basic Practices Hospitals Should Do during the Disaster and Emergency Preparedness Phase

The basic practices that hospitals should do during the disaster and emergency preparedness phase are listed below. Inclusion or exclusion can be made with these items depending on the location, size, characteristics and changes in the population structure of the hospital:

- Firstly, determine the geographical location of the hospital;
- Specify demographic information about the hospital (number of beds, number of generator-sets, morgue capacity, indoor and outdoor areas, car parking capacity, number of operating rooms, etc.);
- Identify other institutions, residential areas and transport routes near the hospital and show them on the map;
- Integrate disaster and emergency management with hospital operations, duties and activities;
- Determine existing and new disaster and emergency risks in the settlement where the hospital is located;
- Reduce existing disaster and emergency risks and prevent occurrence of new risks;

- Prepare for giving effective response to mitigate loss and damages caused by disasters and emergencies;
- Develop procedures/methods in co-operation with various institutions in order to prevent the spread of hazardous substances or to dispose of them;
- Give training to personnel on decontamination techniques and medical care of those affected in case of any contamination;
- Determine the institutions to be cooperated with and the methods and principles related to the specified cooperation;
- Plan backup communication facilities for communication interruption in disasters and emergencies;
- Determine the method of calling the personnel to be assigned during the disaster and emergency;
- Determine the officers and coordinator to be included in the disaster and emergency team. Define their duties, authorities and responsibilities;
- Considering that the health service to be provided during disaster and emergency will increase, determine the medicines and medical equipment to be needed;
- Plan assignment for substitutes in case the team assigned during the disaster and emergency is damaged or has to work for a long time;
- Prepare volunteer application forms; plan the works that can be done by volunteers and the equipment (card, shirt, etc.) to enable them to be recognised;
- Define in detail the issues such as how and by whom alternative patient treatment and care areas will be created, by whom the hospital evacuation decision will be taken and the content of the evacuation planning;
- Make plans for monitoring patients in cases where patient automation is disabled;
- Plan food supplies to be needed in disaster and emergency environment to be sufficient for 0-72 hours;
- Plan patient transfer principles and transfer process;
- Inform all employees and ensure their participation in planning, training and drills;
- Distribute to all units the definitions of duties, authorities and responsibilities;
- Plan alternative buildings or mobile structures considering that the health facility may be out of service;
- Store energy resources that will be difficult to supply in a disaster and emergency environment;
- Determine the procurement methods of the tools and equipment that may be needed before, during and after the disaster and emergency;
- Plan temporary and permanent measures and applications in advance for improvement after disaster and emergency; and
- Organise the review and update processes of the plan.

Considering the items given above, a **Hospital Disaster and Emergency Plan** should be prepared together with other components that the hospital will need.

Hospital Disaster and Emergency Plan (HAP) is the roof plan of hospitals. The plan should be prepared after risk assessment for disasters and emergencies covering all components of the hospital, including the

Figure 1. Cycle of Disaster Management

phases of (1) Prevention/Risk Identification and Mitigation, (2) Preparedness, (3) Response and (4) Rehabilitation/Recovery.

Prevention and Mitigation

Precaution is the stage that includes the identification and minimisation of structural and non-structural (installation, furniture, etc.) risks as well as environmental risks. While this stage is defined as "mitigation" in some sources, some others consider it as "precaution/risk identification and mitigation" together. **Precaution includes the measures taken to prevent the occurrence of disasters and emergencies. In cases where this is impossible, the precautions taken to minimise the loss of life and property are called mitigation.**

According to the annotated dictionary *Açıklamalı Afet Yönetimi Terimleri Sözlüğü (2020),* it is defined as follows: **"Mitigation is all structural or non-structural precautions and activities to be taken before, during and after a disaster to prevent natural, human and technological hazards and environmental degradation from leading to a disaster or to reduce their effects."**

Disaster and emergency hazards and risks should be identified and if possible (which may not be possible in many cases) prevented so that they do not cause major losses, and mitigation precautions should be established when precautions cannot be taken. Strategies and activities to mitigate or limit the negative effects of hazards and risks should be developed. These activities should include:

- Inform and raise awareness of healthcare personnel about disaster and emergency hazards and risks and improve coping capacity of them;
- Improve legislation and institutional structuring applied before, during and after disasters and emergencies;
- Determine and implement research and development policies and strategies, etc.

These activities are long-term works that require many institutions and organizations and various disciplines to cooperate in line with a specific target. In practice, the mitigation phase starts with the activities in the recovery phase and continues until a new disaster and emergency occurs.

Implementation and sustainability of engineering measures to prevent and mitigate the risk of disaster and emergency can be counted as the main activities to be carried out in the risk analysis and mitigation phase.

During the risk assessment of health facilities, also structural and non-structural risks should be considered and time-dependent changes in risks should be monitored.

Risk Assessment and Risk Reduction Planning of Health Organizations

It is possible to ensure health institutions to prevent and reduce their vulnerability to disaster and emergency hazards, become prepared for disasters and emergencies and minimise related losses. In consequence, **Disaster and Emergency Risk Assessment** is important.

Conduct of disaster and emergency risk assessment within the scope of preparedness activities of health institutions is decisive to assure safety for these incidents. In health institutions, there are always a large number of people (hospital personnel, patients and their relatives) as well as costly systems, installations, medical devices and other important equipment. Disaster and emergency safety first of all means to:

- Protect the safety of hospital personnel, patients and their relatives;
- Prevent damage to structures, facilities, equipment and materials;
- Assure uninterrupted continuity of the health service provided.

It is of vital importance that health services continue uninterruptedly in all ordinary and extraordinary (disaster/emergency) situations. The risks in health institutions related to the provision of health services and the equipment used by the people to provide these services and the associated **Risk Management** are extremely important. These two important factors, namely possible risks and their management, make it impossible for the risk manager to work with zero error. However, the correct precautions to be taken by health or risk managers against possible risks can minimise the margin of error. When performing disaster and emergency risk assessment in health institutions:

- Health institution and its location/ settlement/population/region should be considered as a whole in terms of disaster and emergency hazards.
- Hazard analysis should be conducted, all existing and potential disaster and emergency hazards should be identified.
- Vulnerability analysis should be performed.
- All existing and new disaster risks should be determined comprehensively, all possible impacts and consequences (physical, economic, social, environmental, etc.) should be evaluated.

Prevention and Mitigation of Structural and Non-structural Risks

Prevention and Mitigation of Structural Risks

Structural elements or structural system consists of foundation, columns, beams, load-bearing walls and slabs. And other structural elements may be involved depending on the building type.

The general priority in the assessment of structural risks in terms of disaster and emergency safety in health institutions is to examine the safety status of the building in terms of past incidents which affect the structural safety of the building and the structural integrity of the building (building design, features, structural system, materials used, applicable building standards, etc.).

For prevention of problems in the construction and use of buildings, in addition to mandatory legal supervision, the role of the institution manager and personnel is

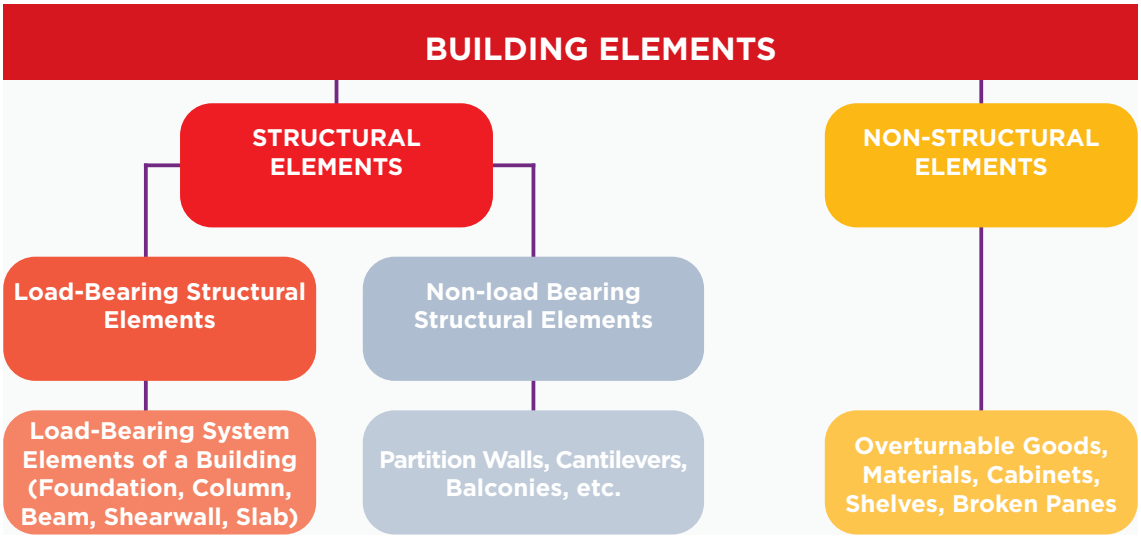


Figure 2. Structural and Non-structural Elements

important together with the observation and control for the end user. In terms of structural elements, the fact that the buildings are built resistant to earthquakes on the basis of the project or subsequently made earthquake-resistant prevents or limits the possible loss of life and property in hospitals in case of disasters and emergencies.

The following information about the structural durability of the building should be provided and included in the plan for prevention and mitigation of structural risks to show whether;

- all legal permits and procedures related to the building have been completed;
- the intended use of the building has changed;
- the loads to which the building is exposed have increased and periodic maintenance and repair have been carried out;
- additions (mezzanine additions, etc.) or reductions (column and/or beam cutting, etc.) not foreseen in the project have been applied to the building;
- structural changes have been made during repairs as a result of damage to the building because of earthquake or other resanos that deviate from the original purpose of construction;
- the building is protected by regular and adequate maintenance and repair,
- time-related weakening is detected in the load-bearing system and similar data should be collected and recorded regularly.

Prevention and Mitigation of Non-structural Risks

Every element that can move, slide, fall and break according to the type of disaster and emergency includes non-structural risk.

Elements other than structural elements, such as foundations, columns, beams, slabs, walls and similar structural elements which form the load-bearing systems of buildings, are non-structural elements. Elements located outside the building such as roof coverings, exterior

claddings, air conditioning installations and all furniture used inside the building, plaster walls, suspended ceilings, coatings, installations, wall and ceiling hanging objects and the like are non-structural elements. Examples of non-structural risks that may cause injuries and loss of life to health personnel, patients and visitors in disasters and emergencies include devices and objects falling from shelves, cabinets or ceilings and breaking of window panes or glass partitions in the walking and usage areas.

In order that health institutions are able to continue their services in disasters and emergencies, their buildings should remain intact and non-structural elements should not be damaged and/or lost. When assessing the condition of non-structural elements the following items should be taken into consideration:

- All disaster and emergency risks in their area;
- Technical and usage characteristics;

Primary Type Risks

Risks that may occur as a result of damage to non-load bearing building elements.

Risks that may occur because of collapse, spillage, overturning of partition walls, spillage of plasters, breakage of windows and similar damages are included in this class.

Secondary Type Risks

The secondary type of risks contains the risks that may occur in case of damage to the load-bearing structural elements. In case of the occurrence of such risks, the damages will be much greater.

The load-bearing system elements of a building are columns, beams, shearwalls, foundations and slabs.The higher the earthquake safety levels of them, the lower the risk.

- Their connections with the structural elements in the area where they are located.

Regular and comprehensive assessments should be made on disaster and emergency safety of nonstructural elements. All employees should be trained on disaster and emergency safety in the use of non-structural elements. As it is, regular and periodic controls should be carried out and records should be kept.

Measures That Can Be Taken within the Scope of YORA (Mitigation of Non-structural Risks)

- Fixing desktop equipment such as computers, television-sets, printers, telephones;
- Fixing all kinds of medical devices;
- Fixing of lighting elements, related installations and other elements subject to the risk of falling and swinging;
- Fixing all kinds of high furniture;
- Placing or fixing oxygen cylinders, hospital trolleys (medicine trolleys, dressing trolleys, etc.) and stretchers in such a way that they do not harm patients and personnel and do not block escape routes;
- Fixing heavy or bulky equipment such as refrigerators and photocopiers to the floor and wall;
- Fixing paintings and pictures on the walls with hooked screws;
- Placing heavy objects on the lower shelves;
- Using special locking systems to prevent drawers or cupboard doors from being opened in case of shaking;
- Taking precautions such as covering window panes with protective film to prevent them from breaking and falling on people; using thick curtains or installing unbreakable panes (this application should be done primarily for

TYPE	ELEMENTS
Mechanical System	Heating boilers, water tanks, heat pumps, ventilation/cooling elements
Electrical System	Electrical installations, uninterruptible power supplies, backup generator-sets
Architectural Elements in Facade and Roof	Masonry chimneys, shield walls, facade claddings, parapets, cornices, windows
Interior Architectural Elements	Doors, ceiling coverings, ventilation system, lighting system, toilets, canteen, kiosk, kitchen cooking systems
Furniture, Tools and Equipment	Laboratory supplies, bookcase cabinets, steel cabinets, hanging panels, computer systems, electronic and other electrical devices, white goods, hanging items, cabinets, decorative items, items on shelves, glasses, cylinders, lighting elements, signs, air conditioners, gas cylinders

Table 1. Non-structural Elements in Buildings

the panes above the evacuation routes);

- Including relevant articles in the technical specifications prepared to ensure the purchase of equipment and materials as per earthquake-compliant standards in the procurement processes of hospitals;
- Making sure that battery-powered emergency lighting (emergency signs) is located on all evacuation routes (corridors, stairs);
- Installing a system which is sensitive to shaking in generator-sets and prevents them from switching on immediately after the earthquake (the generator-set should not start after the earthquake);
- Making sure that natural gas is automatically cut off during the seismic shaking;
- Selecting the sanitary installations of the hospital from plastic materials resistant to shaking, bending and rupture, etc.

Risk Assessment Methods

Risk Assessment: It includes identification of hazards that exist in health institutions or that may originate from outside, analysis of factors that cause these hazards to turn into risks and the risks arising from hazards, rating of the risks and decision about control measures.

Risk assessment is conducted for all workplaces/health institutions, starting from the design or establishment phase, identification of hazards, identification and analysis of risks, decision about risk control measures, documentation, updating of all studies and monitoring of the renewal stages when necessary.

Risk assessment, which also includes risk analysis; aims at predicting the probability of occurrence of risks in connection with existing hazards; injuries and loss of life to human

elements as a result; losses and the degree of damage impact that may occur in the building, machinery and equipment used and the environment. In consequence, it is important to identify the risks associated with hazards.

Each of the hazards identified by risk assessment and analysis are studied separately and it is determined how often the risks arising from these hazards may occur and who, what, how and in what severity may be damaged by these risks. The risks, identified in line with the information and data collected, are analysed by using one or more of the selected methods in combination with factors such as the characteristics of the health facility activity, nature of the hazards or risks in the health facility and specific limitations of the health facility or national or international standards.

Risk Analysis: It means identification of all risks and then interpretation of them by qualitative (contextual) or quantitative (numerical) methods. Hazards increase the potential vulnerability and, if the risk is realised, the magnitude of the consequences. The greater the available capacity against risks and the better the risk can be managed, the more the damage that may occur can be minimised.

Employees in the health sector encounter various risks in different health institutions and organizations, especially in the hospitals and related units where they are working. They are under threat on account of the problems related to the service they provide, environmental conditions, natural disasters and risks related to intensive human circulation. These threats vary according to the frequency, magnitude, duration and impact zone of natural disasters and therefore, be formulated for each risk (short, medium and long term). When analysing risks, the focus should be on damages arising from risks to life and property such as risks originating from:

- Healthcare workers and patients and their relatives, visitors and subcontractor employees in the institution;
- Business services for daily maintenance and repair activities;
- Security personnel and people in the vicinity of the institution;
- Buildings, building equipment, machinery, equipment and chemical substance operations.

Thorough investigation should be made on who and/or what will be affected by these damages; the severity (consequences) of the risks leading to these damages and what measures have been taken or should be taken against the risks that are likely to cause these damages.

All harmful factors that increase the severity of the impact of the risk should be identified by the **Occupational Health and Safety Team** and notified to the senior management first. Following the risk analysis, an assessment should be made for those risks that are tolerable and those that require urgent measures. All employees should be trained in accordance with the identified risks and plans should be reviewed and revised through constant communication. According to the Regulation on Occupational Health and Safety Risk Assessment, Risk Assessment means: *"The necessary studies to be carried out to identify the hazards that exist in the workplace or that may come from outside, analyse the factors that cause these hazards to turn into risks and*

the risks arising from the hazards and, finally, decide on the control measures".

Risk analysis and assessment in all sectors, including the health sector, should become a study aimed at minimising or completely eliminating real risks rather than fulfilling legal obligations. Like all other organizations, health institutions have to conduct risk assessment during the preparedness phase for disasters and emergencies. One of the most important areas where risk assessment is legally obligatory is occupational health and safety.

Risk management activities are carried out on basis of the Occupational Health and Safety Law No. 6331 (ISKG). Enacted in 2012 in our country, the Occupational Health and Safety Law No. 6331 provides all businesses should make/have risk assessments. In this respect, the **Regulation on Occupational Health and Safety Risk Assessment** was published to draw up the procedures and principles of risk assessment to be carried out for occupational health and safety purposes at work. **According to this regulation, the employer is liable to make or get made a risk assessment in terms of occupational health and safety to ensure, maintain and improve the health and safety of the working environment and employees.**

In our country, methods such as "Kaiser Hospital Hazard and Vulnerability Analysis" and "Fine Kinney Risk Analysis" are used in hospitals for disaster risk assessment.

Kaiser Hazard and Vulnerability Analysis: By evaluating the historical data on threats that may arise from natural, technological, human and hazardous substances in the hospital, it examines their impact on people, materials and work according to the probability of occurrence, the probability of response and degree of occurrence of the incident. This method provides a systematic approach to analysing hazards. It provides a basis for identification of potential demands

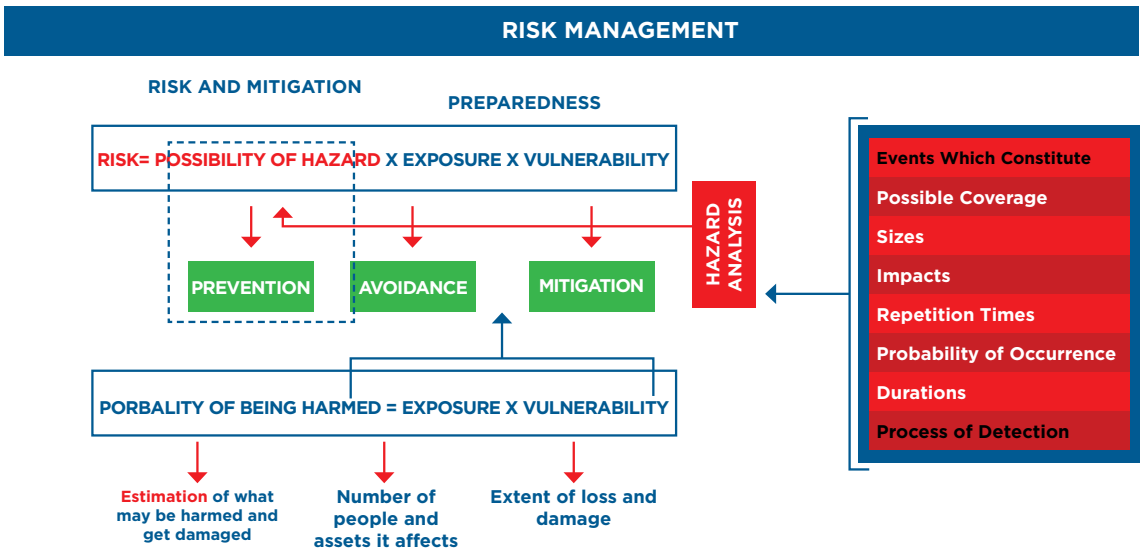


Figure 3. The hazard profile of the hazardous events to be subjected to possible risk control and the characteristics to be investigated.

for hospital emergency services and other needs that may arise during a crisis, so that effective preventive precautions can be taken and a coordinated disaster response plan can be developed. In the analysis, the likelihood of occurrence, impact and response potential for each hazard are evaluated on basis of the specified categories and measures.

Fine Kinney Method: Fine Kinney Risk Analysis is a method developed to quantitatively (numerically) characterise risks and evaluate risk reduction processes. This method includes numerical values for comparison. In addition to occupational safety specialists, clear descriptive statements about risks are used so that administrative personnel and employees can understand them. In this method, three factors are evaluated and **Risk Measurement Value** is obtained:

PROBABILITY VALUE	CHANCE (PROBABILITY) probability of damage	0,5	FREQUENCY VALUE	FREQUENCY repetition of exposure to hazard in the course of time	0,5	SEVERITY VALUE	SEVERITY estimated harm in terms of people and/or environment	100
10	expected, certain	○	10	almost continuous (several times in an hour)	○	100	multiple fatal accidents/ environmental catastrophe	●
6	high/considerably probable	○	6	frequent (one or several times in a day)	○	40	fatal accident/ serious environmental harm	○
3	probable	○	3	occasionally (one or several times in a week)	○	15	permanent damage/ injury/loss of work/ environmental obstacle, complaint from immediate environment	○
1	probable, but low	○	2	infrequent (one or several times in month)	○	7	significant damage/ injury, external first aid requirement/ environmental harm outside the site	○
0,5	not expected, but probable	●	1	rare (several times in a year)	○	3	minor damage/ injury, internal first aid/ limited environmental harm within the site	○
0,2	not expected	○	0,5	very rare (one or more rare in a year)	●	1	near-miss /no environmental harm	○

RISK VALUE		RESULT OF RISK VALUE
400 < R		**Intolerable Risk** necessary precautions should be taken immediately or consider internation of the building and environment
200 < R < 400		**Considerable Risk** should be recovered in long term (in several months)
70 < R < 200		**Significant Risk** should be recovered in long term (within the year)
20 < R < 70	>	**Possible Risk** should be kept under observation
R < 20		**Insignificant Risk** precaution has no priority

Table 2. Fine Kinney Risk Analysis

Name of Hospital																	
Covers the Entire Hospital			Number of Personnel:								Assessed by:						
Source of Hazard	Hazard	Risk	Date:			Probability	Frequency	Severity	Risk Score	Risk Definition	Corrective and Preventive Action	End Time	Responsible	Probability	Frequency	Severity	
			Affected	Result	Present Precaution												
Electricty	Failure to perform periodical control of electricity installation	Electric shock	Employees (electricity technician, physician, nurse, health technician, health mechanist, data entry, cleaning personnel), patients.	Fire, loss of life	Electricalinstallation is maintained.						Annual periodical control of electricity installation should be performed and reported by the electrical engineer.	In less than 1 month					
Cutting and drilling tools	Use of cutting and drilling tools	Continuous work with cutting and drilling tools	Employees (physician, nurse, health technician, cleaning personnel)	Injury, occupational disease	Gloves are used when working. Trainings are conducted continuously.						Ampoule-breaker should be used. All cutting and drilling tools should have protection mechanism. They should be kept in boxes. Unused cutting and drilling tools should never be left lying around.	In less than 1 month					

Table 3. Sample of Risk Assessment

- The probability of the risk occurrence **(POSSIBILITY)**
- The frequency of exposure to the hazard **(FREQUENCY)**
- The degree of severity of the risk if it occurs **(SEVERITY)**

For example, while electricity itself constitutes a hazard, an injury caused by being caught in an electric current or tripping over electric cables is a risk. When we make an assessment in this respect:

- If we assign a possibility value of **1** (possible, but low possibility) to the possibility of personnel being electrocuted;
- If we assign a value of **2** to the repetition, i.e. frequency, of exposure to the hazard, (not frequent, but one or a few times a month);
- If we assign a value of **15** to the estimated harm to people and/or the environment when the risk occurs (permanent damage, injury), then the result would be **30.**

Corrective and preventive actions should be started within 1 year for this hazard in the potential risk scale. These values are determined by the **Risk Assessment Team** according to the data obtained in the organization.

A sample risk assessment is given in the table above. Possibility, frequency and severity values are determined together with the Risk Assessment Team according to the selected method. After the necessary corrections are made and preventive actions are completed, the scores are evaluated again. The important thing is that the precaution to be taken against the risk is completed within the specified deadline/ end time.

Step 2

Preparedness Phase

If risks and hazards cannot be prevented, you are required to be prepared for them in advance. The aim is to minimise the losses that may occur during and after a disaster and emergency. The Preparedness Phase starts with the assessment of risks and capacities and is developed through the creation of a disaster and emergency (response) plan, providing relevant trainings and implementing drills. It is the phase covering activities such as taking precautions against expected hazards before disaster and emergency, resource management, mutual assistance, keeping the personnel informed and trained. It can also be described as the general planning phase.

Damage to health institutions in disaster and emergency causes both interruption of the health service they provide and harm to other users such as patients and companions in the institution, especially health personnel. Hence it is of vital importance in terms of disaster and emergency management that all health institutions, especially hospitals, continue to provide services during and after disasters and emergencies. Health organizations have to be resilient and prepared against disasters and emergencies in order to continue provision of healthcare services, save lives, meet increased requirements of medical treatment and care, and use their limited resources (manpower, material, etc.) effectively (in a way to exceed their capacities if required and without interruption) during and after disasters and emergencies.

It is important for health service providers to prepare a **Disaster and Emergency Plan** in accordance with their capacities and types in order to be prepared for disasters and emergencies, and to respond, recover and gain the ability to return to normal.

Disaster and Emergency Plan

Disaster and Emergency Plan defines the systematic process of reducing vulnerability before, during and after disasters and emergencies in hospitals, managing the crisis effectively, determining mitigation activities and personnel duties in detail and including strategic action plans.

Health organizations have to make more than one plan to be prepared for disasters and emergencies. These include:

- "Civil Defence Plan" in accordance with the "Civil Defence Law" (1979)
- "Protection and Security Plan" for institutions that have obtained a "Private Security Certificate" as per the "Law on Private Security Services" and its implementing regulation (2004)
- "Facility Evacuation Plan" as per the "Ministry of Health Quality Standards in Health" (2013)
- "Emergency Response Plan" as per the "Occupational Health and Safety Law" (2013)
- "Hospital Disaster and Emergency Plan" (2015) pursuant to "Implementing Regulation on Hospital Disaster and Emergency Plans (HAP) "

"Implementing Regulation on Hospital Disaster and Emergency Plans (HAP)" was published in the *Official* Gazette No. 29301 of 20 March 2015. In 2016, the Ministry of Health General Directorate of Emergency Health Services published the *HAP Guide* for the preparation of HAP in accordance with the Regulation. In 2020, a regulation was issued again and published in the Official Gazette No. 31072 of 18 March 2020. The Regulation covers group AI, AII, B, C, D, EI hospitals affiliated to the Ministry of Health, group EII and EIII district state hospitals (group EII, EIII hospitals make the Disaster and Emergency Plan according to HAP), university and municipal hospitals.

The steps to be followed by health institutions within the framework of disaster and emergency preparedness and the headings to be considered according to the scope of the *HAP Guide* published by the General Directorate of Emergency Health Services of the Ministry of Health in 2016 are given below. Additions or deletions may be made in this list depending on the location, size, characteristics and changes in the population structure of the institution.

Disaster and Emergency Risk Assessment

The Disaster and Emergency Plan is made according to risk assessment. After possible hazards and risks are identified by risk assessment and control measures are developed, events to cause great material and moral loss, and require emergency response and first aid can be determined more clearly. Consequently, risk assessment constitutes the most important reference in determining possible disasters and emergencies. Disaster risk assessment and risk reduction planning should be carried out to determine the existing and new disaster risks of the settlement where the building is located, to mitigate the existing disaster risks and to prevent new risks. Structural and non-structural elements of the building should be fully defined. Preparedness should be made for effective response to mitigate the effects of disasters and emergencies and associated loss and damages. These assessments should be planned separately for each building in large facilities such as campus, hospital or city hospital, keeping in

mind that evacuation, transfer/transport, personnel transfer and similar solutions between buildings can be done within the same institution in case of possible risks. When making this planning, remember that services are procured for various units such as cleaning, security and medical imaging in city hospitals and the relevant Hospital Disaster Plan should be prepared by taking these issues into consideration.

Plan Preparation Commission

For the preparation of Disaster and Emergency Plan, a Plan Preparation Commission is established under the leadership of the highest authority in the institution. According to the "Regulation on HAP for Hospitals", the members of the Commission are specified for the group AI, AII, B, C, D and EI hospitals affiliated to the Ministry, group EII and EIII district state hospitals, university hospitals and municipal hospitals. The following members are foreseen for the group AI, AII, B, C, D and EI hospitals affiliated to the Ministry:

- Chief Physician
- Deputy Chief Physician
- Administrative and financial services manager
- Director of patient services and health hospitality services (if available)
- Healthcare services manager
- Doctor in charge of the emergency service/ emergency polyclinic/emergency unit
- Nurse in charge of the emergency service/ emergency polyclinic/emergency unit
- Doctor in charge of the operating room
- Nurse in charge of the operating room
- Doctor in charge of intensive care services
- Nurse in charge of intensive care services
- Public Health Specialist (if available)
- Deputy director in charge of security
- Deputy manager in charge of revolving fund
- Infection control committee official
- HAP office/unit/representative personnel
- Quality Director

- Civil defence specialist or supervisor
- A trained personnel in the field of occupational health if any occupational health professional (occupational safety specialist, occupational safety technician, occupational physician, occupational hygienist, occupational health and / or occupational safety personnel, occupational health and / or occupational safety technical / auxiliary personnel) is not available.

Responsibilities of the Head of Hospital Disaster and Emergency Plan According to HAP

Pursuant to the relevant regulation, the duty of the Head of the Hospital Disaster and Emergency Plan is undertaken by the chief physician of the hospital in the hospitals affiliated to the Ministry and university hospitals, and in the private hosptitals by the managing director. **The President of HAP is responsible for the preparation and implementation of HAP.** In some health institutions, the disaster and emergency plan is made by only one or a few people. Plan-makers are mostly civil defence supervisor, training nurse, quality director or data entry personnel. As hospital services require the collective work of many disciplines today, it is not possible for a single person to know all the units, functions and characteristics of the hospital.

The Hospital Disaster and Emergency Plan (HAP) is a systematic text showing who, when and how the organization will react to incidents in disaster and emergency. In case of any judicial investigation, this text informs the investigator who performed which task, when and how at the time of the incident, just like fire, civil defence or evacuation plans. In consequence, while failure to notify the duties specified in the HAP or failure to provide the necessary trainings may save the relevant persons from investigation, the failure to provide these notifications and trainings constitutes a judicially binding element for the HAP President and commission members.

In case of the death of a patient, his/her relative or health worker in an institutional fire for example, the relevant investigator first requests and examines the civil defence and fire plans together with the HAP from the institution in order to determine where the failure originated from. Basing on the list of the incident management team, work flow instructions and standard operation plans in these plans, the location of the disruption is determined and explanations are requested from the relevant persons. If the relevant persons declare that they have not been notified or provided with the necessary trainings and therefore have no information about the work they need to do, the relevant investigator returns to the HAP President and the HAP commission, asking information and documents that notifications and trainings have been made.

Because of this and other reasons, the task of preparing the HAP is entrusted to the commission mentioned above, and there is no obstacle to prevent the institution from expanding this commission. However, this commission cannot be organised as a smaller team. In some institutions, for example, it has been observed that the civil defence chief, quality director or persons in similar positions

have been orally assigned to prepare the plan. These people can provide consultancy on how and in what way the evacuation should be done, e.g. when preparing the evacuation of the operating room or intensive care unit; but they cannot know how and in what way the patients should be evacuated. In addition, they cannot determine how much, where and how the disaster triage area and bed increase will be. **Hence, the relevant plan prepared is often quoted exactly from other plans and unfortunately this is a common problem. One of the most important objectives of the present Guide is to ensure that this is avoided by providing concrete examples of implementation.**

Another important point is that the approval page of the HAP includes the signature of the chief physician as the maker of the plan and the stamp of the hospital. Furthermore, it is stated that the plan was prepared, examined and recorded by the commission in the last meeting with respect to the HAP with the signatures of all commission members and submitted to the higher authority for approval. Keeping in mind that this statement may have legal consequences, the HAP should be examined by all commission members and necessary arrangements should be made and the minutes should be signed afterwards.

Physical Characteristics of the Hospital Building

One of the most important components of the Hospital Disaster and Emergency Plan is the physical characteristics of the hospital building. While these features are specified in the plan, information should be given particulary about:

- Height of the hospital land above sea level;
- Layout shape of the building related to the directions;
- Natural geographical structures around the building;
- Total land area of the hospital (in square meter);
- Layout area of the hospital building (in square meter);
- Number of the above-ground and underground floors of the building;

- Height and depth dimensions of the building;
- Exterior facade features of the building;
- Type of building construction (reinforced concrete, frame structure, etc.);
- Parking lots;
- Size of garden;
- Areas that can be used as helipads.

Demographic Information about the Building

Inclusion of demographic information while preparing the Hospital Disaster and Emergency Plan is of great importance, especially in the planning phase of health services. The information given in this chapter makes it easier to determine how many patients can be served, which services can be increased in case of need or which areas can be used for opening new departments. In consequence, it is of great importance for planning to specify especially the following items basing on demographic information about the hospital:

- Number of patient beds for each floor;
- Total number of beds in the hospital;
- Units providing service;
- Special units;
- Number and levels of intensive care beds;
- Kitchen and dining hall capacity;
- Number of service vehicles;
- Advanced medical diagnostic and imaging capacity;
- CBRN unit;
- Morgue capacity;
- Capacity of parking lots;
- Number of operating rooms;
- Capacities that can be increased in case of need, etc.

Available Equipment, Materials and Other Resources

This information should be included in the plan, including spares and how long they will be used:

- Generator-set (number, power and fuel tank capacity)
- Capacity of oxygen tank
- Capacity of water tank
- Fire detection systems
- Fire extinguishers
- Warehouse for disaster and emergency supplies and its capacity
- Inventory of supplies

Organizational Chart

When preparing the Hospital Disaster and Emergency Plan, the *HAP Guide* (2016) containing the organizational chart and job descriptions is used. Officers to take place in the disaster and emergency team should be appointed together with their substitutes and shown as primary and substitute in the organizational chart. Points to be considered are as follows:

- The title of the position should be written for the positions to which the persons will be assigned, instead of their names; for example, Healthcare Services Manager instead of Nurse Ayşe GÜVER in the position of Planning Chief.
- Duties, authorities and responsibilities should be defined.
- The assigned personnel should be notified of their duties in writing and necessary training on their duties should be given to them.
- Remember that the personnel assigned in the main chart cannot be assigned in the substitute chart. If the person takes office, he/she will already fulfil his/her duty in the

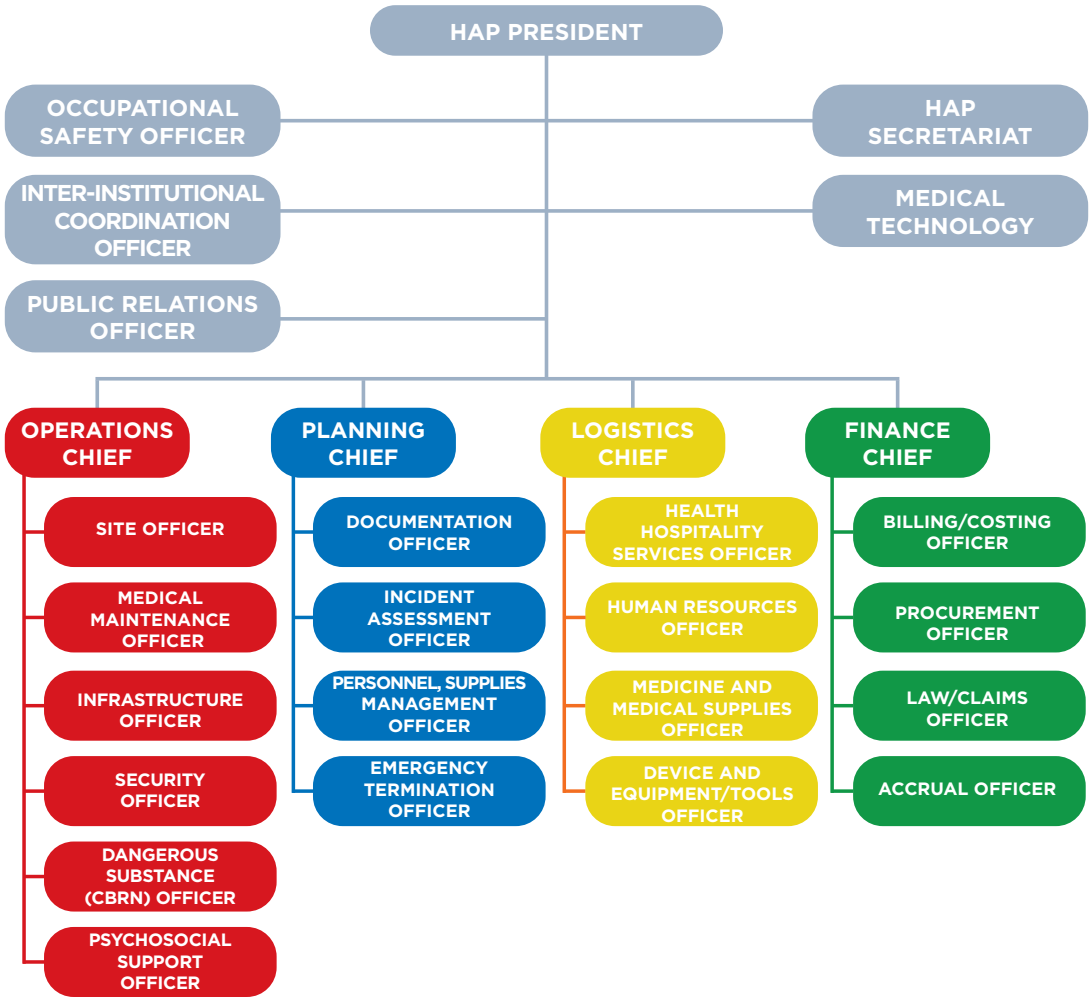


Figure 4. Standard Organizational Chart for Hospitals

main chart. If he/she is not assigned, he/she will not be able to fulfil his/her duty in the substitute chart.

- More than one task can be assigned to a person according to the capacity of the hospital. However, it should be kept in mind that people can only take the tasks in their own groups. Tasks from different groups cannot be assigned to the same person. An employee working under the Chief of Operations cannot, for example, work under the Chief of Planning in the same chart.
- Depending on the capacity of the hospital, sub-positions other than the basic positions can be created in the same way or fewer people can be assigned by combining them.
- A table containing the names and contact numbers of the personnel assigned in the chart should be prepared and added to the plan.

Incident Management Centre and Equipment

Incident Management Centre (IMC) is used as the assembly and management centre of the key positions (Incident Management Team) specified in the plan in disasters and emergencies. If the place designated as IMC in the hospital is damaged, an alternative area should be determined and designated in the plan. The personnel assigned in the Incident Management Team should know the location of the designated alternative IMCs.

The place specified as IMC should be fully equipped and ready for use. Correspondence and communication means and a copy of the Hospital Disaster and Emergency Plan and its annexes should be kept in this place. Furthermore, the following materials should be available as a minimum:

Television-set

- Radio
- Computer, printer, photocopier
- Telephone, radio and chargers
- Lighting devices
- Generator-set
- Uninterruptible power supply
- Stationery
- Camera-recorder
- External disc
- USB memory
- Projector
- Whiteboard and pens
- Personal protective clothing
- Spare batteries, antennas, cables and similar materials that may be needed for all devices used in this place.

Hospital Disaster and Emergency Communication Planning

In hospitals, internal and external communication systems should be established in anticipation of the failure of the central communication system. To this end, computers, internal line telephones, regional radio networks and other paging systems can be used (for detailed information on this subject, see p. 95).

Medical Capacity

The ability of the hospital to respond and continue to provide basic services depends on its medical capacity (number of beds, equipment available) and facilities. These should be specified in the plan:

- Current bed capacity and availability
- Equipment and materials
- Number of personnel and areas of specialisation
- Current capacity and adequacy of basic technical support areas (blood bank, pharmacy, administrative support services, cleaning services, security personnel, etc.)
- Special units and their capacities

Medical Capacity Increase

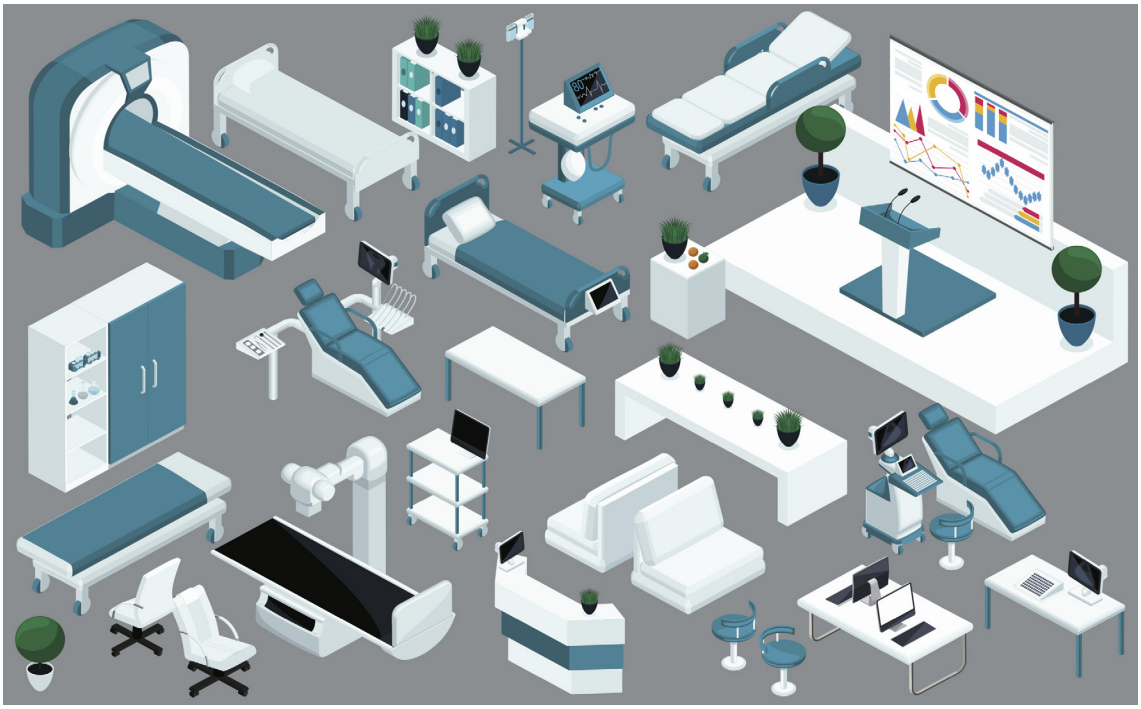
One of the biggest problems of health institutions in disaster and emergency is the increase in medical capacity. Organizations, which have a certain patient capacity during

routine operation periods, undertake an extra burden in disaster and emergency and have to use all their facilities at the highest level to deal with it. During these events, they are under pressure because of lack of time on the one hand and unexpected patient transfers on the other. In consequence, making a detailed plan before any disaster and emergency occurs and implementing this plan at the time of the incident provides great convenience for hospital management and employees. Planning of medical capacity increase is of vital importance for patients and their relatives who receive service from the institution.

Because of all these reasons, when preparing the **"Medical Capacity Increase"** heading in the hospital disaster plan, participation of both the management level and authorities of Provincial Health Directorate should be assured.

The issues to be considered under this heading include the items and examples below:

- **Firstly, you should decide for which incidents the capacity increase should be planned.** In this respect, hospital risk analyses and regional risk studies act as guidance for planners. When planning possible risks, due consideration should be given, for example, to floods in the cities of Black Sea region, earthquakes, terrorist incidents, CBRN and epidemics in Istanbul, and mass migration and transfer of wounded people after war for the southeastern cities.
- **SWOT analysis (strengths, weaknesses, opportunities, threats) to be made within the institution is also of great importance for this planning.** During the analysis, the institution should be examined by an experienced team. The fact that the hospital has a large garden is an advantage, for example, in terms of establishing a mobile hospital, providing the

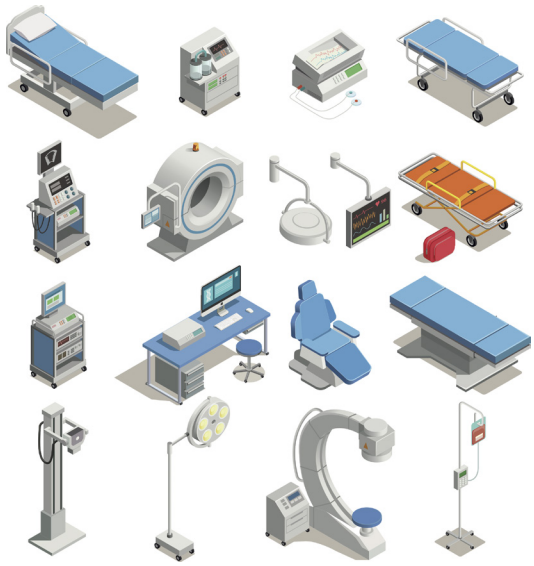


opportunity to examine and treat patients outside the building during the summer months if required.

- **Keep in mind that an increase in medical capacity does not only mean the provision of beds for new patients.** Especially prior identification of patients who can be discharged in times of need and procedures for rapid discharge them at the time of the incident are also increase in capacity. Clinics such as dermatology and physiotherapy with fewer inpatients may benefit if they are analysed in this respect.
- **Planning the transfer of patients who cannot be discharged in disaster and emergency to appropriate health institutions in close distance and with lower occupancy rates is also an increase in capacity.** For Istanbul, transfers should, for example, be planned to hospitals in districts such as Silivri, Çatalca and Şile, where summer tourism is predominant and they operate with lower occupancy rates at the end of the season.
- **In order to increase the bed capacity, remember that companion chairs and stretchers can be used as additional beds with the existing bed capacity.** Furthermore, transfer of beds from institutions such as hotels, boarding schools, student dormitories and military barracks closed after the disaster can increase the number of beds to a great extent.
- **Depending on the size of the affected area in disaster and emergency, public spaces such as schools, gyms, cinema halls and congress centres, etc. that can be temporarily out of service can be used by nearby hospitals.**
- **Refrigerated trailers (transport vehicles towed by the main vehicle) can be used by hospitals to store morgues, medicines, food and blood products when meeting the need for closed and specialised space.** Remember that, especially in post-earthquake periods when

access to hospital buildings is risky, refrigerated warehouses in close distances and trailers waiting in the parking area of trucking companies can be used.

- **Another important issue in increasing medical capacity is related to increasing medical device capacity.** Any unit operating in the health institution can be enlarged in idle areas. If a unit operating with 4 dialysis machines is, for example, supported with 4 machines to be brought from outside the city or from another damaged hospital, the existing personnel can double the dialysis service capacity. Such capacity increase is vital for patients with crush syndrome (crushing injury, significant tissue damage), especially in disasters like earthquake (see p. 118). The same capacity expansion can be planned for laboratories and blood centres.
- **One of the most important components of medical capacity increase is personnel needs.** Because an increase in beds alone does not mean anything, it is necessary to enhance the capacity of health, security and cleaning personnel. Although it is planned to recall the personnel on leave for this increase, it should be kept in mind that some of the hospital personnel may also be disaster victims if the disaster occurs in the city where the health institution is located. In consequence, it is useful to make planning by estimating that only 50% of the personnel of the health institution can be on duty in disaster-prone regions. Especially in disasters such as earthquakes, planning shelters and kindergartens for health workers who cannot provide shelter to their relatives will increase the number of health personnel who can return to duty.



- **Protocols to be followed in procurement of outsourced personnel and planning by the governorship are of great importance.** When the need for security will increase, support can be obtained from the students of the provincial police schools and military schools. Provincial nursing schools, final year students of faculties affiliated to various health units and voluntary health institutions stand out in terms of meeting the need for health personnel in disaster and emergency. For cleaning and patient transfer, it is possible to benefit from the cleaning personnel of public institutions closed down in disaster and emergency.
- **Volunteer personnel management constitutes an important pillar of medical personnel supply in disaster and emergency.** It is of great importance that the personnel

of the institution that will undertake the management of volunteer personnel should be trained in advance, volunteer ID cards for volunteers with the hospital seal on it and hung on the neck (blank) should be prepared in advance and that they should be trained on registration, forms and photocopying. As volunteer management may lead to legal problems after a disaster and emergency, a high level of sensitivity should be shown for all these steps. There is a separate heading on this matter in the HAP.

- **Because of the increased capacity and additional personnel in disaster and emergency situation, there will be also significant increase in the need for food.** In order to increase the capacity in this regard, it is important to add relevant clauses to the contract with the catering firm from which the institution receives service, enable the Red Crescent and other aid organizations to set up mobile kitchens near the health institution and make use of the cooking facilities of nearby hotels and military caserne. It should also be kept in mind that the Provincial Governorship has the authority to confiscate all kinds of necessities, transport vehicles and fuel in disaster and emergency. Supply, transport and distribution of baby food, ready-to-eat food, canned food, hot meals and similar items should be planned in advance.
- **In prolonged crisis environments, the need for laundry and cleaning supplies is of great importance and possible epidemics can lead to serious loss in case of problems in this respect.** In consequence, it is important to review the laundry facilities of nearby boarding schools, dormitories, hotels and military units and prepare the necessary protocols. Likewise, protocols should be prepared with the relevant manufacturers and wholesalers for cleaning supplies.
- **Supply of medical equipment and supplies is also of great importance in disaster and emergency.** Especially the protocols made with external companies should provide that the consumables of the devices supplied are kept in the warehouse of the supplier company to meet the need for at least two months and the guarantee of delivery within 24 hours upon written request should be claimed. Furthermore, should the Hospital Disaster and Emergency Plan indicate records about how materials, which are under normal conditions disposable, can be cleaned and reused again.

As can be seen, the increase in capacity does not only consist of an increase in the number of beds. In addition to the issues mentioned above, spare materials in the possession of the technical service and the need for spare fuel should also be taken into consideration. Each institution may add to or exclude different items from this list in relation to its own plan of capacity increase.

Assembly Areas and Specific Areas

Assembly Areas: Assembly areas are safe areas where everyone in the building or facility in question (employees or people in the work area at that time) can assemble when evacuation is required in disaster and emergency (fire, earthquake, etc.). Assembly areas enable people to get away from danger in case of disaster and emergency and to check whether there is anyone left inside as a result of taking roll at the assembly area. The suitability of the place designated for the assembly area is important. When deciding

on the suitability of the assembly area, following requirements should be considered:

- The place designated as the assembly area should be at a safe distance from the building.
- The main purpose of creating an assembly point is to make sure that everyone in the building can assemble safely in an area away from danger during a disaster and emergency.
- The assembly area should not be near power lines, traffic and similar sources of danger.
- The assembly area has not to be necessarily in the hospital garden. If required, empty areas at a suitable distance or gardens of other institutions can also be used for this purpose.

Places designated as assembly areas should have sufficient lighting. Assembly areas should be marked with visible signs. Security conditions of assembly areas and who will be responsible for this should be specified in the Hospital Disaster and Emergency Plan as well.

Specific Areas: When patient admission and treatment capacities need to be increased, specific areas can be opened depending on the need. While there is no need for any area for giving information to the relatives of the patients in the normal working flow, this issue is of great importance in disaster and emergency. Similarly, press information areas are one of the areas which are not required in normal working environment, but are needed at times of disaster and emergency. Specific areas may consist of the following (specific areas may be increased or decreased depending on the physical condition of the institution):

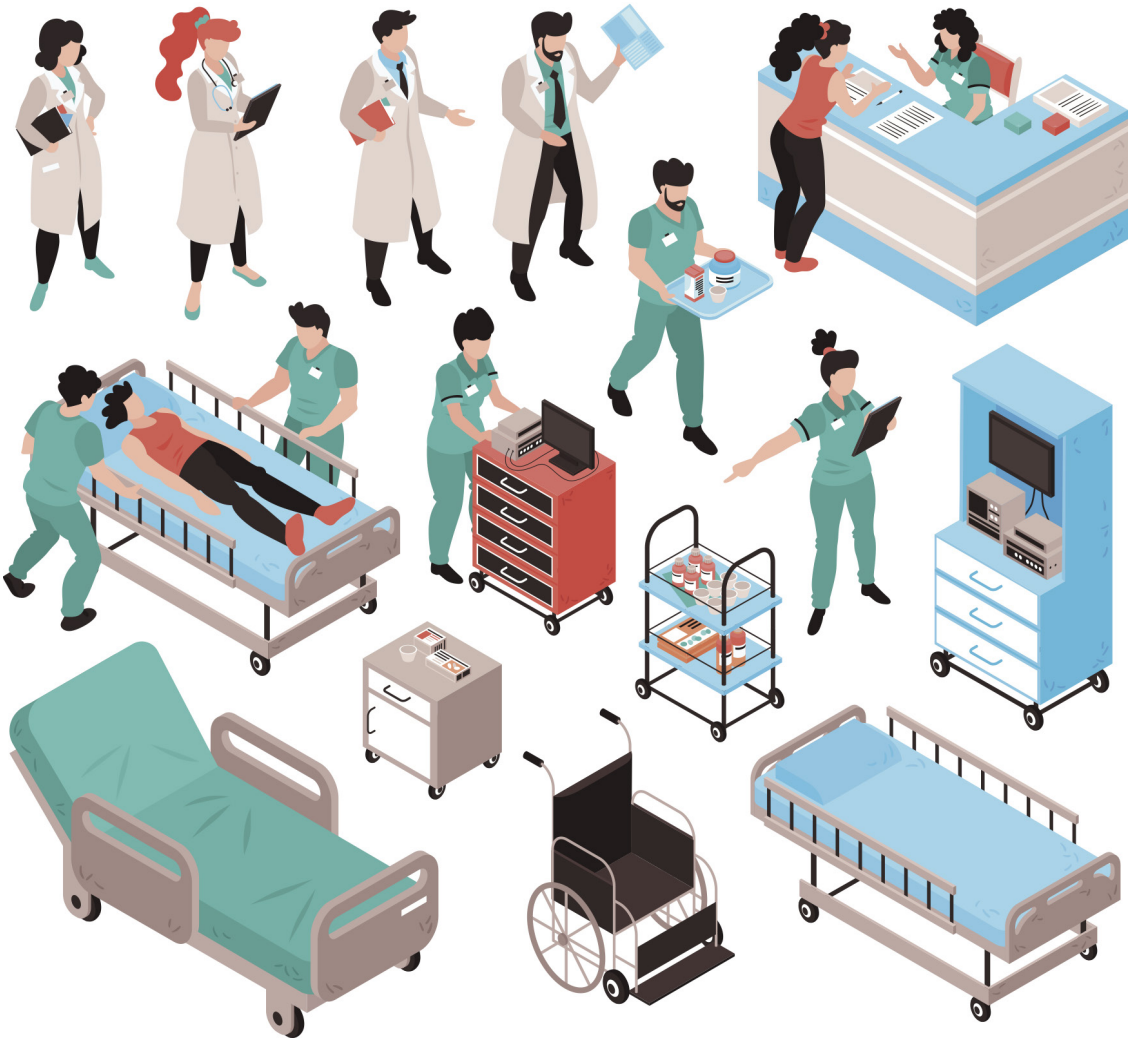
- **Hospital Disaster and Emergency Triage Area:** If the number of injured people exceeds the hospital capacity, a triage area can be established in a safe and suitable area close to the hospital where the first response can

be made. The location of the vehicles transporting the patients, environmental safety of the area and similar issues for the establishment of the disaster and emergency triage area should be determined by the hospital with written instructions.

- **Specific Outpatient Department:** Patients/ injured people who come directly on foot or who have a low level of health problem are referred to this department, which provides care particularly for mildly injured people. The aim is to give treatment to a large number of people in a short time with few materials and personnel.
- **Information Area for Patients and Relatives:** This is a designated area to inform patient relatives and family members. Information can be given by authorised personnel. A procedure on how and by whom the information will be given should be prepared and specified in the plan. It is more appropriate for psychologists and psychiatrists to serve in the information area.
- **Volunteer Management and Information Area:** It is a designated area to receive volunteers who apply to the hospital for

giving assistance at a point away from the treatment areas. Written instructions on volunteer management and information should be prepared and included in the plan together with the information area marked on the sketch.

- **Temporary Morgue Area:** This is an area reserved for temporary storage of bodies in case the number of dead exceeds the capacity of the hospital morgue. This area should be completely secured and only authorised persons should be allowed to enter. Its location should be marked on the sketch and included in the plan. To this end, cold storages or refrigerated vehicles in nearby areas can be used.
- **Media Information Area:** This is an area designated to provide information to media personnel. Unless the HAP President/ hospital management assigns personnel for information, no information can be given to the media.



In the Hospital Disaster and Emergency Plan, the characteristics and locations of assembly areas and specific areas should be specified and employees should be informed about this issue. Furthermore, the locations of these areas should be marked on the sketches.

Incident-Specific Plans

These are plans developed for internal emergencies and specific situations that may occur within the hospital. They are prepared for specific responses to disasters and emergencies of high-risk groups that require special procedures, systems and equipment and specially trained teams and skills.

Incident-specific plans are plans that should be prepared by considering the possible risks that health institutions may encounter. These are plans made to prevent various risk factors such as the location of the institution, geographical situation, nearby factory-like facilities, main transport routes, airports, and disruptions that may affect the internal function of the hospital. They are considered for situations which require special response according to the type of disaster and emergency. These plans are made for incidents that do not pose a risk for each hospital, but may pose a possible danger for the institution.

Health institutions located near the districts where industrial facilities are densely located are, for example, obliged to have a CBRN unit and prepare an incident-specific plan in this respect, taking into consideration the possible risks. Health institutions with boarding schools, student dormitories or military casernes in their immediate vicinity are also obliged to prepare plans for mass poisoning. It is recommended to have an incident-specific plan ready for such admissions. Likewise, it would be appropriate for hospitals close to large city squares where meetings and demonstrations are held to prepare an incident-specific plan for mass injury admissions. However, oral and dental health hospitals are not required to prepare an incident-specific plan for CBRN or epidemic diseases. Still, the response method for the risk of such a disaster and emergency (works and procedures related to referral to another institution with a CBRN unit) should be included in the plan. The *HAP Guide* includes examples of incident-specific plans for fire, chemical incidents and incidents which require evacuation and interruptions in business continuity.

When preparing Incident-Specific Plan:

- Emergency response principles to cover general principles should be taken into consideration;
- Response management should be specified in detail by the Incident Management Team;
- Preparations should be made in the hospital and all preparations should be completed, especially the issues that the personnel should know;
- Standard Operating Procedure should be established.

Sample of Incident-Specific Plan Hospital Management in CBRN Events

Today, the rapid development power of technology causes significant changes in the daily life of societies. While these changes bring many conveniences, they can also lead to serious problems. Rapid developments in the fields of energy, transportation, communication, nutrition and health also trigger specific problems in the same fields.

With technological advances, the increasing human population and needs have made different

solutions necessary. Radioactive materials, various chemicals and genetically modified foods, which were not used in daily life a hundred years ago, have become a part of modern social life, bringing their own problems as well. These problems are briefly summarised under the title of CBRN:

- C- Chemical
- B- Biological
- R- Radiological
- N- Nuclear

CBRN events have started to appear in the field of health like other branches of science, and they became considerably important in healthcare in recent years.

Chemical substances have entered our lives in many more areas such as food dyes, sweeteners, preservatives, furniture, clothes and colourants and with different formulations expressed in hundreds of thousands compared to a hundred years ago. The fact that the factories using these materials are located close to residential areas has caused us to encounter the acute and chronic harmful effects of chemical substances on the human body more frequently.

In the field of biological substances, the genetics of various microorganisms are modified to increase productivity in both war and peace. Because of modern transport technologies, regional diseases can easily spread to different societies by travelling very long distances and in a very short time. Genetic modifications in microorganisms can cause serious health problems in societies without immunity in the course of time. We now experience the consequences of it in the Covid-19 pandemic on a global scale.

Radiology has gained importance in the last century and been used for diagnosis and treatment, especially in the field of health. Today, use of it in other branches of science negatively affects human health. The emergence of chronic health problems in addition to the acute ones makes it necessary to find solutions for many issues that have not been encountered before in the field of medicine.

In the same way, nuclear problems have started to emerge in the last century and have led to the emergence of a field that had no equivalent in basic medical education before. Today, obtaining energy by means of nuclear power plants, use of nuclear weapons as a war strategy and nuclear medical treatment methods bring serious public health risks.

In summary, CBRN events cause collective health problems as well as individual ones. As the

solution area for these problems is the healthcare system, hospitals and institutions they are affiliated with need to be more sensitive and prepared for these events. With the tecehnological developments, the importance of this issue increase in civil defence plans and disaster and emergency plans of the hospitals.

The fact that CBRN incidents concern many units, can follow a path that prevents general hospital operation and ultimately have the potential to make the health facility completely inoperable, is of great importance in the disaster and emergency planning of health institutions.

CBRN events may start individually or may affect a certain group of the society and cause an intensive patient application. When planning, remember that that the entire health facility may be out of the system because of a CBRN event. In consequence, the "CBRN-Incident Specific Plan" should be considered separately in the hospital disaster and emergency planning. The issues that should be considered first in this plan are listed below:

- Keep in mind that CBRN cases are usually referred to the emergency service. In chronic problems, polyclinic applications can also be made rarely.
- Keep in mind that the first point of application to the emergency service is the triage area. As it is, it is important to select the personnel who will work in triage among the personnel trained in CBRN.
- The officer who suspects CBRN during triage should first inform the emergency doctor and only after necessary precautions are taken, the case should be interviewed with the relevant doctor.
- During this interview, detailed information about the name of the active substance, the number of affected people and the way the incident occurred should be obtained.
- If the suspicion of CBRN increases or is confirmed at the end of the interview, the Emergency Service Responsible Doctor and Hospital Management shoud be informed about the case.
- During this information process, necessary precautions should be taken against the possibility of secondary contamination of the suspected case and the management decision should be awaited.
- If the management considers that the incident is a CBRN case, the appropriate units or all of the health facility should be informed by announcement with colour code **ORANGE** (see Appendix 1-Code Orange Instruction).
- As a result of this information, the relevant units should start the necessary work in line with the framework of the Hospital Disaster and Emergency Plan previously made.

From the moment the incident is recognized as a CBRN case, different tasks are performed simultaneously in different units of the hospital with the issue of the colour code **ORANGE**. Each unit is obliged to fulfil the work and procedures specified for itself without delay. They are as follows:

Hospital Management

- Work is initiated by assembly at IMC (Incident Management Centre).

  In the CBRN case, necessary information about the content, amount, effects on human, antidote, treatment method and spread of the relevant material is obtained from the competent institutions and organizations about the possible affected areas.

- Information about the number of beds available is taken from all units.
- All non-urgent work and operations are suspended until further notice (such as dialysis, laboratory, operating room and intensive care).
- The Presidency, Provincial Health Directorate and 112 are informed about the matter.
- Administratives of the neighbouring hospitals are warned about possible applications regarding the case.
- Relevant police units are informed in order to get support for possible confusion and security needs.
- HAZMAT Team (hazardous materials response team) of the relevant municipality is informed that they may be needed.
- Provincial AFAD is informed about the matter.
- As the incident is a forensic case, the relevant personnel are warned about identification and recovery of evidence.
- In the environment where CBRN risk continues, decision is taken whether or not to continue normal health services or which one of them to continue.

Emergency Service

- The victim of CBRN incident and the first contact personnel are isolated/insulated in an area designated in advance to prevent possible contamination of the environment.
- Depending on the severity of the contamination situation, other patients in the emergency service, their relatives and not needed healthcare personnel are removed from the area.
- Depending on the status of the active agent, emergency room ventilation and entrance doors not required to be used are closed.
- A health team and a security team are assigned at the emergency entrance of the hospital (in order to direct patients to other hospitals except for CBRN cases).
- Specialists in connection with the treatment of cases are directed to the emergency service and treatment preparations are started (such as plastic surgery, infectious diseases and chest diseases).
- The contamination area and contamination materials are prepared to keep them subject to the "hazardous waste procedure for materials to be disposed of" and necessary precautions are taken.
- Devices and materials that can be reused after decontamination are cleaned appropriately and made ready for use.

Inpatient Services

- The floor, service or block to be used for CBRN are evacuated according to the Hospital Disaster and Emergency Plan.
- Unnecessary materials in the rooms to be used are taken away.
- For prevention of unnecessary entries to the related unit via the access ways, these areas are closed with a barrier tape and like.
- The ventilation of the unit is switched off according to the condition of the active agent.
- Personnel working in the unit are ensured to wait while wearing appropriate CBRN clothing.
- The lift and entrance areas are cleaned after transfer.

Decontamination Unit

- The unit is opened in accordance with the instructions of the incident management team as stipulated in the Hospital Disaster and Emergency Plan.
- Necessary safety measures are taken for the decontamination unit and its surroundings.

- The personnel to work in the decontamination task put the unit in service by wearing their special clothes.
- During the decontamination process, patient privacy is taken into account and necessary precautions are taken to this effect.
- The triage team appointed previously starts the first triage by going to the duty station.
- During the decontamination process, the people required to be decontaminated urgently are treated first.
- Funerals are taken to the final decontamina-tion process (special body bag and burial process may be required).
- Before decontamination, it is checked whether the area lighting, video recordings of the decontamination area and air conditioning systems for other processes are functioning properly.
- Starting with the mildest case, the clothes of the persons are placed in separate medical waste bags and then these bags are tied up for sealing and names of the persons to whom they belong are written on them; after the process, each bag is put back into a second medical waste bag and named or numbered (this process, all materials such as glasses, prostheses, watches, etc. are put in this bag during this process).
- At the end of the decontamination process, these bags are recorded in the minutes and handed over to the hospital police or security forces.
- At least one health personnel wearing appropriate clothing is present in the decontamination unit, for orientation of the patients.
- Decontamination is done with cold water (the most suitable decontaminant is soap), except for cases which require special treatment.
- The decontamination process starts from the top and ends at the feet.
- Once the decontamination process is completed, the person surely decontami-nated is taken out of the unit and referred to the relevant health area by wearing a box apron or similar sterile clothing. Contamination control should be performed by special devices used for the active substance (e.g. CAM).
- All cases are identified with a triage wristband when leaving the triage area. If there is no identification information, it is very important to take a photograph of them after numbering (these identities are of great importance for transfers to different institutions).

- Remember that patients coming out of decontamination may be contagious until they are discharged because of the substances they inhaled. Hence all precautions should be maintained.
- The corridors and lifts that the patients will use until they reach the relevant ward should be specified in the Hospital Disaster and Emergency Plan and necessary precautions should be taken.
- After the decontamination of the patients who can walk on their own, switch to the decontamination of the patients who are unconscious or unable to stand.
- Patients who do not have a back injury or another disability are placed on their backs and the front side of their body is cleaned first. And then the patient is carefully turned to his/her right and left sides to decontaminate the back part.
- After decontamination, the supine patients are placed on a clean stretcher, covered and referred to the treatment area by personnel wearing protective equipment.
- Patients who died because of the incident are placed into special body bags after the final decontamination process and their identity details are marked on the bag (with a label or acetate pen).
- After the decontamination process of all cases is completed and the cleaning process of the personnel working in the triage and decontamination area is also completed, the unit is decontaminated by the relevant personnel.
- As it is not appropriate to discharge the washing water used during the decontamination process directly to the waste water system, the liquid is collected in liquid tanks of 5-10 tonnes in volume and neutralised or delivered to the relevant institutions against a report.
- The clothes and other materials used are cleaned again and kept ready. A disposal procedure is specified for materials that cannot be decontaminated (such as filters and fabric materials).
- After the images recorded in the decontamination area, lists and documents about the patients are organized and two copies of each sent to the hospital management.

Termination of the Incident

- All patient records and name lists of patients are received and reviewed by the Incident Management Team.
- Hand-over minutes are organized for the clothes of the patient.
- Video records of the incident in the emergency service and decontamination unit are provided in three copies at least.
- The case information of the persons transferred out of the institution in connection with the incident is confirmed from the relevant places and lists are created.
- The lists of the materials sent to different places with the patient as a result of the incident or because of need are recorded together with their serial numbers.
- Confirmation is received from the relevant institutions as to whether there will be any other cases.
- Final control reports of the health personnel who took part during the incident and information forms for the problems that may arise later are created.
- A closing meeting is held with all stakeholders and a closing report is kept on possible risks and measures to be taken.
- An incident report (together with video recording, patient list and necessary minutes) which describes the work and procedures carried out in the health institution about the

incident is created and forwarded to the superior officers of the higher institution.

- Medication, antidote and similar materials which are used for all these procedures are supplied again and necessary procedures are started to keep them ready for a new incident.
- Considering that the incident does not end until all patients leave the health institution, daily reports are kept and the necessary measures are taken.

Although the management of CBRN incidents generally includes the practices mentioned above, some additions and exclusions can be made with respect to these practices by taking account of the characteristics of the agent, the number of affected people and the secondary effects of the incident on the community.

As in the saying *"There is no disease, there is a patient!"* in healthcare education, there may be different practices in CBRN incidents depending on the agent, the characteristics of the health institution, the possibilities of the management team and the secondary problems that may develop. In consequence, when preparing the Hospital Disaster and Emergency Plan, as many scenarios as possible should be reviewed and measures should be taken against the failures in practice. A different scenario should be selected each time for the drills to be held for this purpose, making sure the relevant personnel improve themselves. During these drills, possible risky institutions near the health facility (factories, military facilities, etc.) and possible problems (regional migration possibility, terrorist attacks, adverse geographical features, etc.) should be selected as example.

Disposal of CBRN Waste

Today, with the development of technology in the modern world various electronic devices, chemical materials and radioactive substances have entered our lives. Accordingly, the number of addmissions to hospitals of people affected by such substances is increasingly higher. The disposal of substances that contaminate the materials used during various interventions with patients and the contaminated washing waters arising from the cases where patients are washed due to decontamination constitute an important problem for hospital administrations.

It is possible to eliminate a very considerable part of the waste arising from the disposal process without any harm to people and nature. Liming the washing liquids of simple biological substances and then discharging them to the sewerage is, for example, one of the accepted methods. It is also possible to dispose certain chemicals with the help of antidotes or by diluting them with water.

However, some other materials fall outside this classification and are labelled as hazardous waste. Institutions collect these materials in certain quantities and deliver them, after keeping them under appropriate storage conditions, to the relevant organization of the metropolitan municipality for disposal in consideration of a fee. On behalf of public health institutions, these contracts are collectively made by the parent organizations to which they are affiliated. Private health institutions have the right to make individual contracts. It is recommended that the contracts for disposel of hazardous waste are examined by the authorized officers of the institution. The materials classified as hazardous waste are labelled with various codes. In the technical specifications section attached to the contracts, it should be indicated which materials, in which periods and how they will be received.

Another point to keep in mind that in many incidents classified as CBRN, there is no precise

information and record of what the active agent is when the patients are admitted to the hospital and during the first responses. In consequence, until a definite information and document about the active substance is obtained, all kinds of extracts (substances excreted from the organism), waste and other materials are considered as very dangerous substances. All precautions should be taken at the highest level and waste should be disposed accordingly.

In addition, there may be materials that are not classified as hazardous wastes, but are included in the CBRN classification, such as some war chemicals, residues of radioactive accident and resistant biological materials that need to be disposed of without classification. Such a case may emerge as an important CBRN incident that concerns the city Istanbul as a whole. The issue may concern not only the hospital, but also the Governorship of Istanbul, Istanbul AFAD and even the whole country as a national problem. In such cases, as the Governorship of Istanbul is the authorized institution in the disposal of waste, the necessary procedures and ways of disposal should be performed in line with the procedures and principles specified by the governorship.

Incident Management Tools

Incident management tools consist of Standard Operating Procedure (SOP), Workflow Instruction Department/Service/Unit Response Procedure and Incident Action Plan.

Standard Operating Procedure (SOP)

It specifies the rules to be applied and what to do when a disaster or emergency occurs. The Standard Operating Procedure (SOP), which is used to eliminate the differences of application in performing a specific function in case of disaster and emergency, basically includes the written rules specified for the fulfilment of the relevant function, work or action when the plan is activated.

SOP makes sure that a specific function is prepared in a way to address to the questions of where, what for, when, how and who. It explains how information to be shared, what to be recorded and how, to whom, when and how it will be reported. It is very important that the specified procedure is simple and easy to understand. The minimum headings to be used when creating the SOP are listed below:

- Name/Title of Procedure
- Main Action
- Targets
- Actions to Be Performed in Order
- Occupational Safety Rules and Control Procedures
- Materials to Be Used
- Quality Control and Timeframe
- Coordination with Other SOPs and/or Stakeholders
- Possible Special Situations
- Persons to Be Involved in the Process
- Appendixes
- How to Record Actions
- Monitoring
- Safety Issues

Workflow Instructions

They are documents that describe the steps to be taken to fulfil a specific task, the course of action to be taken and explaining in detail how to perform the actions for implementation. It is a simple tool used for the predetermination of tasks, responsibilities and actions to be carried out by the personnel. Workflow Instructions should be created for all positions/jobs in the Incident Management System.

Occupational Safety Officer Workflow Instruction	
	Time chart for the realisation of actions and reporting.*
Prolonged Actions • Ensure that late-onset symptoms/signs are recognised and management requirements are foreseen. • Ensure that personal belongings (personal belongings are labelled and kept in a special room under supervision by police/security officers). Make sure relevant forms are kept regularly. • Ensure that personnel are regularly informed about the process of the emergency. • Ensure that all personnel fully comply with the precautions in case of infectious diseases, pandemics and/or CBRN events. • Ensure that information sharing is based on the protection of personnel and patients and not the other way around. • Ensure that critical data is recorded and stored securely. • Ensure that confidentiality rules are respected in the storage and management of medical data. • Ensure that important data are only accessible and usable by authorised persons.	

Termination of Emergency Response Plan Activation
• Send personnel back to their routine duties and combine or gradually reduce positions when need of assistance by them diminishes.
• Ensure that all support equipment and vehicles and all allocated disaster and emergency management equipment are withdrawn and relocated.
• Inform the HAP President at the end of the mission about spontaneous problems, present problems and future needs.
• Ensure that the Occupational Safety Analysis Form of Disaster and Emergency Action Plan is delivered to the HAP secretariat at the end of the mission.
• Submit comments to the HAP President for discussion and inclusion in the post-activity report, including the following issues:
  • Considerations of current position/job descriptions and operational checklists;
  • Suggestions for procedure changes;
  • Achievements of the department and problems encountered.
• Attend at stress management and post-activity debriefings (reporting/inquiry) and other necessary briefings and meetings.	

How Actions Are Recorded Occupational Safety Analysis Form of Disaster Action Plan	
The person you will report to: HAP President	
Identification: Put on your mission vest.	
Other	

*It is only a sample. (The HAP Preparation Commission decides on the required timeframe.)

Table 4. Occupational Safety Officer Workflow Instruction

Workflow Instructions are specified for functions and positions/jobs, not for individuals. The minimum headings to be used when creating Workflow Instructions are as follows:

- Name/Title of Workflow Instruction
- Task
- Actions to Be Performed
  - Initial Actions
  - Ongoing Actions
  - Prolonged Actions
- Termination of Emergency Response Plan Activation
- How to Record Actions
- Superior/Authority for Reporting
- Identification
- Other

Response Procedure of Department/ Service/Units

Departments/services/units show different characteristics in terms of the services they offer, their management structure and functioning.

Department Response Procedure: It consists of written documents stating where, why, how, by whom, when and, if required, how to control the medical procedures and other services carried out in the department.

Response Procedure: It should be simple and easy to understand and follow. It should show the responsibilities of the department and personnel who perform the task. It should not include all the details of the work, but the critical points required to be under control. It should ensure that the tasks that need to be under control are done in the same way by everyone and set standards. It should describe the work according to the order in which it is done in the course of time. An organizational chart should be generated for the management structure of department/service/unit and job descriptions should be made. While preparing the Response Procedure, you should consider the following points:

- Who will perform which work or process and by which method;
- How the records to be kept and which forms to be used;
- Principles on which the reporting, responsibility and supervision to be based;
- How the coordination with IMT (Incident Management Team) and different departments/services/units to be carried out; and current Incident Action Plan, SOP and Work Flow Instructions should be utilised in this respect.

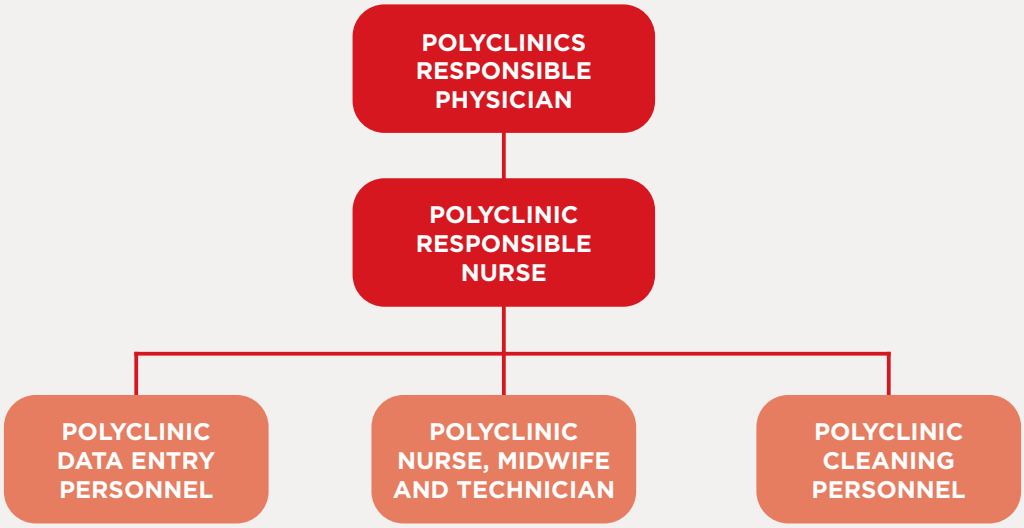
Sketches

Escape and evacuation sketches should be generated for disasters and emergencies. These sketches should show:

- Assembly Areas and Specific Areas
- Evacuation Routes and Evacuation Area
- Emergency Entrance/Ambulance Reception
- Morgue
- Lift
- Entrance/Exit Points
- Generator-set
- Location
- Emergency Response Unit/Field Hospital Area
- Fire Protection Systems (fire extinguishers and cabinets, fire buttons etc.)
- Warehouses for disaster and emergency

_____ Hospital	Standart Operating Procedure for Response in Polyclinics	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 1/3
		Time chart for realisation of actions and reporting.*

ORGANIZATIONAL CHART FOR ORDINARY AND EXTRAORDINARY CASES



Main Activity: Upon activation of the Emergency Response Plan, the services provided are carried out effectively, timely and uninterruptedly by switching from routine working mode to disaster and emergency working mode.

*It is only a sample. * (The HAP Preparation Commission decides on the required timeframe.)

Table 5. Standard Operating Procedure for Response in Polyclinics (Page 1/2/3)

_____ Hospital	Standart Operating Procedure for Response in Polyclinics	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 2/3

	Time chart for realisation of actions and reporting.*
Polyclinic Responsible Physician: • Ensures the activation of the Standard Operating Procedure for Response in Polyclinics upon the request of the IMT (Incident Management Team). • Checks whether the "Work Flow Instructions", "Standard Operating Procedures", records and forms included in the Reponse Procedure are ready for the use of the relevant personnel in case of disaster and emergency. • Checks the suitability of the response procedures and the possible consequences of the measures/ actions to be taken. • Gets information from IMT on how to ensure coordination and how to share information. • Holds a meeting with the existing personnel and obtains information about the current situation (such as the number of personnel, adequacy and functionality of the materials). • Gives necessary instructions to the Polyclinic Reponsible Nurse again for the distribution of tasks, if necessary, according to the developing incident and the current personnel situation. • Makes sure the required materials and personnel are sufficient and takes corrective measures if necessary. • Anticipates the needs and possible problems and thus provides effective and sustainable coordination of logistics management between IMT and the polyclinic. • Makes sure the personnel are regularly informed about the process of the emergency. • Starts partial or full evacuation, if necessary, according to the instructions of IMT. • Carries out the necessary changes related to the provision of the service. • Provides information about the situation and needs of the IMT in certain periods.	
Polyclinic Responsible Nurse: • Determines the current situation (nurse personnel for cleaning, data entry personnel, materials, devices, space, etc.). • Informs the Polyclinics Responsible Physician about the current situation. • Redistributes tasks among the personnel if required and ensures the operation continues without interruption as soon as possible. • Involves the IT department, technical service, security guards and polyclinic employees in the internal incident management of the unit according to the situation of the incident. • Contacts the Polyclinics Responsible Physician for procurement in case of need for personnel. • Contacts with the Security Officer for security needs. • Ensures records related to the incident are kept. Provides the needed documents and recording materials. • Informs the Polyclinics Responsible Physicianabout the situation and needs in certain periods.	

_____ Hospital	Standart Operating Procedure for Response in Polyclinics	
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	Time chart for realisation of actions and reporting.*
Nurse, Midwife and Technicians as Employees of Polyclinic: • Act according to the instructions from the responsible nurse. • Control the areas where they work and inform the responsible nurse. • Employees working in the units not affected by the incident continue their routine tasks, and when necessary, move to the relevant area with the assignment of the responsible nurse. • Inform the responsible nurse about possible needs and problems.	
Data Entry Personnel: • Act according to the instructions from the nurse in charge. • Keep related forms and records. • Send the compiled information to the Nurse in charge of Polyclinic at certain intervals.	
Cleaning Personnel: • Act according to the instructions from the responsible nurse. • Evaluate the area where they work and inform the responsible nurse. • Employees working in units that are not affected by the incident continue their routine functioning, and when necessary, move to the relevant area with the assignment of the responsible nurse.	

*It is only a sample. (The HAP Preparation Commission decides on the required

Table 5 (continued). Standard Operating Procedure for Response in Polyclinics (Pages 1/2/3)

_____ Hospital	Standart Operating Procedure for Response in Polyclinics	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 3/3

	Time chart for realisation of actions and reporting.*

Materials to Be Used

SOP, Workflow Instructions, Forms:

- Standard Operating Procedure for Initial Assessment of Treatment Capacity and Capability
- Standard Operating Procedure for Total or Partial Evacuation
- Standard Operating Procedure for Logistics and Material Management
- Standard Operating Procedure for Safety Management
- Workflow Instructions for Polyclinic Responsible Nurse
- Other relevant SOPs and Workflow Instructions
- Identity cards
- Equipment and materials

Occupational Safety Rules and Control Procedures:

- Occupational safety procedures should be applied as usual for personnel and patients.
- Possible problems likely to threat the security, occupational safety and health of the personnel should be considered by the Polyclinics Responsible Physician.
- The personnel wear their name badges.
- All personnel fully comply with protective measures.
- The maintenance of critical equipment is not neglected and necessary precautions are taken.

Persons Involved in the Phase:

- Members of IMT (Incident Management Team)
- Technical officers of the departments of medical care, nursing care, administrative services, logistics, security

Quality Control:

- Check that main activities and critical services of polyclinic are realised.
- Ensure effective information management.
- Ensure effective logistics and security management.

_____ Hospital	Standart Operating Procedure for Response in Polyclinics	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 3/3
		Time chart for realisation of actions and reporting.*
Ways of Recording the Actions: • Form for Patient Last Status List • Registration Form for Personnel in Charge • Status Report Form • Personnel Timesheet Form • Material Follow-up Form • Internal Information Share Follow-up Form • Other related forms		
Safety Issues: • Control quality and maintenance of medical care. • Control problems of security and occupational safety. • Control for availability of basic materials and equipment.		

*It is only a sample. (The HAP Preparation Commission decides on the required timeframe.)

Table 5 (continued). Standard Operations Procedure for Response in Polyclinics (Page 1/2/3)

_____ Hospital	Code Blue Standard Operating Procedure	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 1/1
		Time chart for realisation of actions and reporting.*

Basic Action:

- Provide basic life support to patients who have lost their vital functions.

Targets:

- Ensure the rescue of the person who has lost vital functions.
- Ensure the personnel in the Code Blue Team to reach the scene as soon as possible.
- Ensure the continuity of the Code Blue organization for 7 days/24 hours.
- Take necessary measures to ensure that patients and the employees are not harmed during the incident.

Actions to Be Performed in Order:

1. The patient's consciousness, breathing and circulation are evaluated. (If the first hospital personnel who find the patient is not a healthcare professional, he/she asks for the help of a healthcare worker in a loud voice).
2. For calling emergency help, the phone number ..... is called immediately or the CODE BLUE TEAM is notified by pressing the code blue call button on the nurse call systems.
3. When the phone number ..... is called for Code Blue notification, Code Blue notification takes place.
4. Until the Code Blue Team arrives, the local team (Code Blue Notification Team) performs first response to the patient, starting CPR (heart massage) if necessary.

Informs the team when the Code Blue Team is received.

Code Blue Team:

- Team members take action as soon as they receive the Code Blue call at phone number .....
- Code Blue Team takes their Emergency Response Bag and equipment with them and arrives at the scene within 3 minutes at the latest to the patient.
- Takes over the leadership from the local team when the patient is reached.
- Receives information from the local team.
- Immediately intubates if necessary (if the ward personnel have not performed this function) and provides the patient with the necessary respiratory support.
- Maintains CPR (heart massage) and manages all advanced life support interventions.
- Code Blue Team asks to contact with the relevant physician, when a doctor is neded by other clinics.

Occupational Safety Rules and Control Procedures:

- Availability of Personal Protective Equipment for Code Blue Team

Materials to Be Used:

- Hospital telephones (fixed and DECT)
- Blue Code Bag and Emergency Response Vehicle
- Blue Code Incident Report
- ...

_____ Hospital	Code Blue Standard Operating Procedure	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 1/1
		Time chart for realisation of actions and reporting.*
Quality Control: • Check that the Code Blue Team has arrived at the scene as quickly as possible. • Code Blue Forms should be used.		
Timeframe: • As soon as possible (maximum 3 minutes)		
Other Standard Operating Procedures and/or Coordination with Stakeholders: • ...		
Special Situations that May Be Encountered: • Attack by patient relatives • ...		
Persons Involved in the Process: • Local Team (employees who performs Blue Code notification) • Security Unit (if required) • ...		
Appendix: • ...		
Ways of Recording Actions: • Related Forms • Blue Code Incident Report		
Monitoring: • ...		
Security Issues: • Security personnel should ensure safety of the Blue Code Team if required.		

*It is only a sample. * (The HAP Preparation Commission decides on the required timeframe. It should be detailed according to the works and transactions of the organization. Each organization will use its own related

Table 6. Blue Code Standard Operating Procedure

_____ Hospital	Code Black Standard Operating Procedure	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 1/1
		Time chart for the realisation of actions and reporting.*

Basic Action

- Provides safety of the area and surroundings when a suspicious package/bag, etc. that may pose a bomb threat is noticed in and around the hospital.

Targets:

- To ensure the safety of the patient, patient relatives and hospital personnel and the location in question.

Actions to Be Performed in Order:

1. If patients, patient relatives and hospital employees notice a suspicious package / bag etc. in the hospital, they call the nearest personnel using extension phone to call at.....
2. If the hospital security officer notices a suspicious package / bag etc. during patrol, he/she notifies the security supervisor by radio and reports the scene.
3. The security supervisor quickly goes to the scene upon such phone call or radio announcement and directs the security teams closest to the scene for control of the area.
4. The security supervisor reports the situation to the Chief Physician/Hospital Manager, starting CODE BLACK as a result of the instructions received.
5. Security officers provide evacuation from the scene.
6. Security guards prevent access to the area by drawing a safety tape and take the risky area under control.
7. Upon the decision given by the HAP President, the police forces and the fire brigade are called by the Inter-Institutional Coordination Chief and the necessary information is given.
8. The area is kept under protection until the arrival of general law enforcement; suspicious package/bag is not moved.
9. Flammable materials near the risky area are removed from the area.

Occupational Safety Rules and Control Procedures:

- Occupational safety procedures are applied as usual for personnel and patients.
- Priority is given to the safety of patients, relatives and hospital personnel.
- All kinds of security threats are considered.

Materials to Be Used:

- Barrier tape
- ...

Quality Control:

- Maximum attention is paid to the safety of patients, relatives and hospital personnel in the hospital.

Timeframe:

- ...

_____ Hospital	Code Black Standard Operating Procedure	
Document Code: _____ Published on: _____ Revised on: _____ Revision No.: _____		Page 1/1
		Time chart for the realisation of actions and reporting.*
Other Standard Operating Procedures and/or Coordination with Stakeholders: • Inter-institutional Coordination Chief Workflow Instruction • Security Management SOP • Other relevant SOPs and Workflow Instructions		
Special Situations that May Be Encountered: • Patient relatives, visitors and personnel may want to take pictures. Warn the Security personnel to take precautions and be careful.		
Persons Involved in the Process: • Law Enforcement Officers, Fire Department, IMT (Incident Management Team) • ...		
Appendix: • ...		
Ways of Recording Actions: • Related Forms • Black Code Incident Report		
Monitoring: • Inform superiors at regular intervals while the process continues. • Check whether the informed persons have made monitoring decision.		
Safety Issues: • ...		

*It is only a sample. (The HAP Preparation Commission decides on the required timeframe. It should be detailed according to the works and transactions of the organization. Each organization will use its own related document.)

Table 7. Black Code Standard Operating Procedure

Step 3

Response Phase

Response phase covers all the activities to save the lives of a large number of people, provide treatment for the injured, meet the vital needs of the affected people such as shelter, food, evacuation, protection, warming, security, psychological support, etc. as soon as possible during or immediately after the disaster and emergency. It is the phase in which the plans prepared and the measures taken before the disaster and emergency are put into practice and the actual activities of the personnel who have been determined before and who will take part in this framework take place. Effective, correct and rapid response in disasters and emergencies is possible with the measures taken and activities carried out in the Preparedness Phase before the event actually occurs. The main objective in the response is to realise these actions in the shortest time and with the most appropriate methods. It covers all works and operations carried out by using disaster and emergency resources to ensure the safety of life and property at the time of the incident. All actions to be performed in the response phase aim to use the resources of the health institution in the fastest way and with effective methods. As the response phase contains extraordinary conditions, it requires a good coordination.

Incident Management System (IMS)

It is a modular field emergency management system, established to respond to all hazards and disasters and emergencies at all levels. This system has a standardised organizational structure and ensures that all activities that may change or result during the incident response process are effectively managed by the hospital.

Emergencies which internally occur within the hospital are managed according to the decisions of the Incident Management Team (IMT). When the Hospital Disaster and Emergency Response Plan is activated, the usual management mode is switched to emergency mode and IMT is activated.

Incident Management Team (IMT)

It contains five basic positions:

1. Management:

- HAP President
- Public Relations Officer
- Inter-Institutional Coordination Officer
- Occupational Safety Officer
- Medical-Technical Advisory Board

2. Operations Chief:

He/she is responsible for:

- Development and implementation of strategies and tactics;
- Organization of response areas;
- Management of resources;
- Assignments in connection with medical care, infrastructure, security, hazardous substances and psychosocial support.

3. Planning Chief:

He/she is responsible for:

- Collection and analys of all data related to operations and resource management in disasters and emergencies;
- Development of alternatives for tactical operations;
- Start of long-term planning;
- Organization of planning meetings;
- Preparation of Incident Action Plan for each operational period

4. Logistics Chief:

Organises and manages provision of services, manpower, equipment, food, water, medicine, medical supplies and other materials which are required for the disaster and emergency response activities of the hospital.

5. Finance Chief:

He/she is responsible for the provision of all

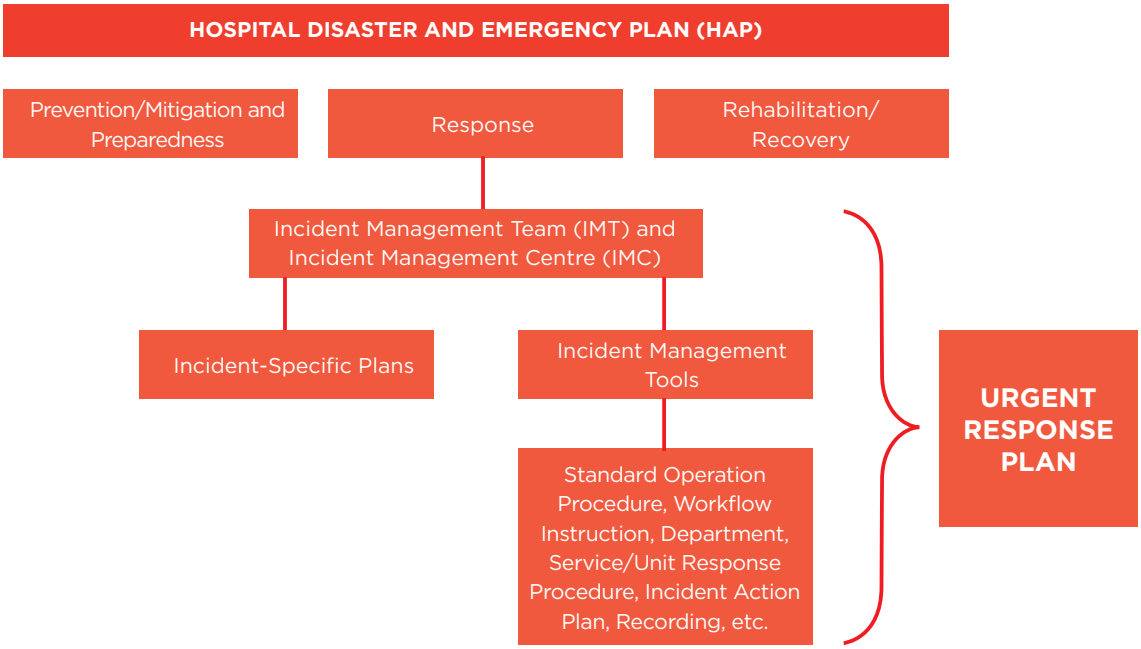


Figure 5. Incident Management System Chart

kinds of goods and services to be required during and after the incident and performs the utilisation and expenditure accounting of financial assets. Manages the recording and reimbursement of expenses incurred during the provision of services.

Sub-positions other than these five basic positions can be created in the same way or they can be combined and fewer officers can be assigned. In basic positions, more than one task may be assigned to one person according to the capacity of the hospital. If more than one task is to be assigned to a person in sub-positions, it should be ensured that it is one of the tasks under the same position. While the status assessment task is, for example, assigned in the planning department, the infrastructure responsible from the operation department cannot be assigned at the same time. The organizational chart should be created together with the lists of substitutes in case relevant people are not available on the day of the incident (see p. 53, Figure 4).

Hospital Incident Levels

- **Level 1** (incident with minor impact): The hospital is able to perform the service with its existing capacity without external assistance. Relevant higher institutions should be informed.
- **Level 2** (incident with moderate impact): Many health facilities or hospitals are involved. Relevant higher organizations should be informed.
- **Level 3** (incident with large-scale impact): It requires effective co-operation and co-ordination of all regionally activated hospitals. It is the level which involves all health managers at local and national level.
- **Level 4** (incident with a very large-scale impact): Incidents which require international support.

Emergency Colour Code

Emergency Colour Code is a general warning system which allows the hospital to respond

BLUE	Medical Emergency (Cardiopulmonary Arrest/Sudden Cardiac Arrest)/ Life Risk of Adults/Children
GRAY	Assaulter, Armed Person or Situation of Active Shooting/Hostage
GREEN	Termination of Emergency
ORANGE	Leakage/Spillage of Dangerous Goods
PINK	Baby/Child Abduction
PURPLE	Activation of Emergency Response Plan
RED	Fire
WHITE	Assault on Employee
YELLOW	Evacuation
TURQUOISE	Collective Injury Cases Outside the Institution
BLACK	Bomb Threat

Table 8. Emergency Colour Codes

quickly with an accurate and clear message to incidents that require urgent specialist response. The aim is to provide common communication and information as soon as possible about what needs to be done at the time of the incident with the emergency colour code message. In case of disasters and emergencies, it allows health facilities to increase their own security as well as the security of personnel, patients, companions and visitors within and between institutions by responding appropriately.

Only hospital personnel are notified with the Emergency Colour Code. The aim of using emergency colour codes is to prevent patients and their relatives from being informed about the event in case of a possible risk, thus preventing them from panicking or making unexpected attempts. Furthermore, it is ensures that correct communication is established between hospital personnel without the need for long explanations in risk situations, time is saved for correct response and the safety of patients and employees is protected by preventing possible panic.

Evacuation

Evacuation is defined as the process of taking away people and materials from a region, a building or a floor within a building. Hospitals are complex structures where patients with restricted mobility, their companions and employees are together because of the service they provide. In the event of any internal or external disaster and emergency, the evacuation of these buildings becomes a problem which involves expertise.

Today, the dense settlement in big cities has rapidly led to higher land costs rapidly. This development has necessitated the construction of multi-storey hospitals in a narrow area, although they are expected to be low-rise with large floor area. Hospitals generally serve a group of users who are mobility restricted, bed-dependent or unconscious.

When evacuation of the building is necessary because of any internal or external threat, it may be required to transfer patients with their beds, associated equipment and often as accompanied by health personnel to mobile hospitals or other hospitals established in the open field outside the building.

In consequence, evacuation stands out as one of the most important topics of this Guide and is dealth with under a separate heading. The types of evacuation, divided into many sections within themselves, have different characteristics according to the branches. In this framework, firstly general rules are stated in articles and then evacuation types are classified according to their characteristics. (For detailed information, see *Disaster and Emergency Planning Guide for People with Disabilities).*

Before Evacuation

- Evacuation types should be specified in the Hospital Disaster and Emergency Plan and the personnel should be trained on this subject.
- Searchlights/emergency lighting should be provided in necessary sections against possible lighting failure during evacuation.
- Direction signs should be placed and controlled in sufficient number and accurately in order to prevent possible misdirection in case of panic.
- Inpatients and their companions should be informed about the possibility of emergency evacuation from the moment of admission.
- Special evacuation plans for intensive care patients, burn units, newborn units, psychiatry, prisoner wards, etc. should be included in the plan in detail.
- The route to be taken by personnel, visitors or ambulatory patients during evacuation should be indicated.
- Floor sketches showing the layout of patient rooms and emergency exit routes should be placed behind the doors.
- Assembly areas outside the hospital should be determined and patients and personnel should be informed about the subject.

Making Decision on Evacuation

- First of all, it should be remembered that the evacuation decision is a very serious procedure and the authority to make this decision belongs to the chief physician of the hospital during working hours and to the chief on duty outside of working hours.
- It should be kept in mind that the evacuation decision should be notified to the immediate superiors as soon as possible.
- The evacuation decision is a precaution to be taken against an existing or possible danger.
- The basic idea in taking such decision is that it is impossible to solve the problem that caused the evacuation decision in a vital period of time. An evacuation decision may, for example, be made by the management in cases such as hospital fire, earthquake and large-scale failures in support systems.
- It is of great importance to accurately determine the maximum endurance periods, especially for UPS (uninterruptible power supply), oxygen system and fuel of generator-set.
- Evacuation to another intensive care unit or to the intensive care unit of another hospital may be possible, especially in case of resistant infection in intensive care units.
- In CBRN cases, against the possibility that a large number of cases could come to the institution, discharge procedures may be accelerated or evacuation to hospitals in more distant centers may be planned in order to make room for new patients.
- In case of epidemic or war, it may be considered to evacuate the hospital closest to the scene to make room for future cases.
- Evacuation should not be considered as the complete evacuation of a hospital in all cases. Under the heading of evacuation, mass patient transfers between different blocks or floors of the hospital should also be planned.
- When making an evacuation decision, it is of great importance to plan the ambulances to be used in coordination with the Provincial Ambulance Service Chief Physician, especially during transport of patients to long distances. This planning can be decisive on the duration and method of evacuation.
- The institutions or units to be evacuated should be informed in advance and an agreement should be reached on the number of patients they can accept.

- When making the evacuation decision, it should first be decided on the group of patients to be evacuated. As the removal of a large number of patients from the environment may be on the agenda, the patients to be evacuated more easily should be planned first. However, in case of a major failure in the oxygen or electrical system, priority should be given to evacuation of patients in areas such as intensive care and operating rooms.
- Remember that evacuation is a process to be carried out by taking into account the facilities and problems of each institution and these issues should be considered realistically.

During Evacuation

- Evacuation is announced with a **YELLOW** colour code.
- Personnel support can be taken from other departments in case of Partial Evacuation.
- Appropriate transport techniques should be used.
- It should be decided where the patients will be transported.
- For evacuations outside the building, Command Control Centre **112** should be informed about the issue and an ambulance should be asked.
- Personnel possible to be needed during evacuation should be called to duty.
- A team should be formed during evacuation to guide the foreign personnel coming from external institutions.
- Considering that people may be unconscious or have problems with the level of consciousness during evacuation, identification should be confimed with pre-attached barcodes, wristbands, triage cards and similar measures without leaving the identification to the person himself/herself.
- Considering that patients will continue to receive healthcare in the department to which they will be transferred, the destination area of the evacuation should be determined in advance.
- Necessary precautions should be taken to ensure medical documents as well as identity data are transported with the patient.
- In order for the health service to continue in the unit to which the transfer will be made, medicines and similar materials to be needed should be sent with the patient in case the need cannot be met.
- In environments where a large number of evacuations will be made, patient records and

the information of the travel area should be recorded and delivered to the management after the incident.

- If the transport is carried out by means of a vehicle, information such as the licence plate number of the vehicle should be recorded.
- Necessary precautions should be taken by considering the amount of energy and consumables of medical devices to be used during transport.
- Accompaniment of health personnel should be planned according to the need during transport.
- Necessary precautions should be taken for personnel and materials against life-threatening hazards that may occur during transport.
- In case the lifts cannot be used during evacuation, mobile transport equipment should be kept ready in sufficient quantity in the relevant unit.
- Areas with electricity, lighting and heating utilities should be created in the external areas of the institution against the possibility of waiting for a long time in the external environment during transfer of device-dependant patients.
- Precautions to ensure privacy should be taken in these areas.
- Necessary traffic arrangements should be made to prevent the vehicles bringing to or taking patients from these areas from creating chaos.
- Security measures should be taken against possible risks in all institutions and open fields during evacuation.
- A unit should be established to ensure that all evacuation information is organised and presented to the management.

After Evacuation

- A suitable information area should be established to inform the relatives of the patients coming from outside the institution.
- The task should be terminated after the evacuation by taking the information of the patients and injured from the institution to which they were sent.
- Information about the evacuation should be communicated to the higher institutions within the knowledge of the institution supervisor.

Types of Evacuation

Different types of evacuation are defined according to the place where it is carried out:

- **Horizontal Evacuation:** It is the transfer of the patient lying in any ward in the health institution to another ward on the same floor without the help of a lift.
- **Vertical Evacuation:** It is the transfer of the patient lying in any ward to the lower or upper floors with the help of a lift due to a problem on the floor.
- **Internal Evacuation:** The transfer of a patient on any floor in the hospital to another unit or block for medical or technical reasons.
- **External Evacuation:** The transfer of a patient on any floor in the hospital to another health institution for medical or technical reasons.
- **Partial Evacuation:** It is the evacuation of a certain part of the patients and injured in the institution.
- **Total/General Evacuation:** It is the evacuation of all patients, injured and personnel in the institution.

Step 4

Recovery Phase

General Information

Recovery phase involves short, medium and long term coordinated efforts and processes for regeneration of health institutions after disasters and emergencies. The recovery process may last over hours, days, weeks or years depending on size of the damage and the health facility, building and department it affects.

General objectives of the disaster and emergency personnel are to:

- Minimise the disaster and emergency damage;
- Restore the emotional, social and physical well-being of individuals and communities;
- Assess opportunities for adaptation to meet the future needs of the community;
- Reduce future exposure to hazards and associated risks.

Recovery planning is an integral part of disaster and emergency preparedness and does not only consist of assessment after disaster and emergency. Recovery is not about return to normal/conventional order. It is more about smart, quality, sustainable and resilient regeneration. The environment after disaster and emergency presents challenges, but also new opportunities for re-planning and reorganization. In proceeding from immediate response to long-term recovery, health institutions have to cooperate with partner organizations and affected community segments.

Community-based short and long term recovery of health institutions includes:

- Provision of emergency health services to individuals and families directly affected by the disaster and emergency;

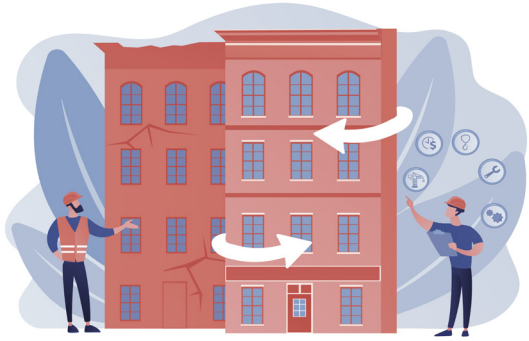
- Identification of community health and psychosocial recovery needs and giving priority to necessary psychosocial activities (for detailed information, see *Psychosocial Support Guide for Disasters*);
- Development, implementation and monitoring of community health recovery activities;
- Communication with high vulnerable segments of society and their participation in the decision-making process;

- Renewal/adaptation of existing organizations and methods in a way that minimizes the time for institutions in charge to become functional after disasters and emergencies;
- Contribution to the development of future mitigation and planning activities.

Recovery activities after disaster and emergency are in many ways similar to those in normal daily life, such as people looking for or building houses/apartments, businesses facing commercial difficulties, and recovery efforts for infrastructure and public services. However, the key difference in the recovery phase is that all these activities occur simultaneously and under time pressure. This unusual characteristic determines many of the key features of the recovery phase:

- While trying to restore normal living conditions, having to do it under speed and quality pressure.
- Mismatch between the flow of financial resources and the pace of recovery.
- Inequalities before disaster and emergency are exacerbated after the event because of increase in demand for limited resources simultaneously.
- Opportunities to change, develop and improve land use, facilities and infrastructure.
- Inadequate information, data and planning support despite the need for rapid decision-making.
- Different levels of recovery and success related to the reconstruction of the physical environment, access to resources and the restoration of social networks.

The recovery phase is not only about renovation of physical assets and provision of social services. Successful recovery should cover various recovery needs of individuals as well as society. The four pillars of social sustainability are social, economic, natural and structural resources. Health institutions are related to each of these four pillars. In order to ensure that the health services they provide are accessible and sustainable, they should demonstrate the ability to respond to new needs that arise because of new requirements and changes in demand and to rapidly reshape their service and care models, especially in the recovery phase after a disaster or emergency.



In social recovery, it is critical not only to provide medical, mental and social health services, but also to manage the effects of

potential environmental problems on health and the subsequent recovery process correctly.

Community health also forms the basis of economic recovery and sustainability. In this respect, the resources used by public and private health institutions as well as their contribution to local and regional economies play an important role.

In consequence, it would be appropriate for health service providers and especially public health institutions to be adequately represented in local or regional committees and actively participate in the commissions of institutions such as Provincial/District Health Directorates, Civil Defence and Search & Rescue Directorates. Thus, they can operate more effectively as members of recovery committees assigned by central administrations for responses during and after major disasters and emergencies.

- Monitoring and supervision of recovery activities are important not only for the uninterrupted continuity of health services but also for the development of future planning and mitigation activities. The following topics should be emphasised during monitoring and supervision:
- Recovery needs of health care providers.
- Identification of potential risks and vulnerabilities of health institutions that may prevent them from providing essential health services and prioritisation of recovery needs.
- Operational continuity in the delivery of health services.
- Activation of recovery efforts for community health.

Recovery Works of Health Institutions

One of the four main components of the disaster management cycle is the recovery phase. This phase takes place in all disaster managements, but with different meanings depending on the disciplines and management systems in which it is used. For urban planners, for example, recovery may mean reconstruction of buildings, urban transformation or creation of a new city, while for health professionals, recovery means the return of the health institution to its former functions and provision of a safer and wider range of services with all its units than before the disaster, if possible.

For health institutions, the recovery phase is of great importance due to the urgency of health services which should be planned in advance and started immediately after the acute phase of the disaster. While it is possible to stop, transfer or postpone the service to another region after a disaster in other public services, this is not the case for health institutions. After a disaster and emergency, for example, the education service of schools may be suspended in a region for a period of time or shifted to other undamaged schools according to needs. Likewise, the demand for sporting activities such as gymns or football fields may disappear completely. However, the need for health services is even higher in large-scale disasters and emergencies such as epidemics, earthquakes and floods. As it is not possible to provide these services in a more distant centre or postpone them for a certain period of time, it is obligatory for health institutions to switch to the recovery phase as soon as possible after the disaster.

In general, recovery phase is a process covering the period after the acute period of disaster and emergency. However, for health institutions, this process has to start days or even hours later. The earlier the necessary health services are provided after the disaster and emergency, the less the damage and loss of life caused by the event. In consequence, the recovery phase in health facilities should be started much faster and a certain part of the service should be started immediately according to the need. In order to achieve this, the health facility should pass to the recovery period after the disaster and emergency by following certain steps. The most important matters in this regard are listed below:

- **Assessment of Building Damage:** In case of a disaster and emergency where the health institution is structurally affected, building damage assessment should be carried out by authorised institutions, taking into account the risks related to building safety. Especially after disasters and emergencies such as fire or earthquake, the first inspection report drawn up by the technical service should be shared with the hospital management and, if necessary, a report on the stability and usability of the building should be obtained from authorised institutions.
- **Infrastructure:** After it is confirmed that there is no structural damage to the structural elements of the building, "no damage/usable" reports received from the institutions regarding utility systems such as electricity, water and natural gas should be recorded by the hospital management.
- **Minor Damage Repair:** Supply of necessary goods and correspondence should be performed in order to start repairs for minor damages that can be carried out as soon as possible by the health institution's own personnel or the technical personnel of the health directorate to which they are affiliated.
- **Medical Devices and Equipment:** After the elimination of structural damages, the necessary repair, installation, maintenance and calibration (adjustment/measurement) of medical devices and equipment should be performed. Documents certifying that the necessary repair, installation, maintenance and calibration procedures have been completed by the relevant institutions should be recorded by the institution management.

- **Service Commencement:** In case of any disruption or delay in the issues mentioned under the items above, it may be planned to start the service of certain parts or certain functions of the organization. In case of problems with the opening of operating rooms or wards, the organization may first put the polyclinic service into operation.
- **Outsourced Materials:** As hospitals are institutions where accommodation services are provided in addition to health services, they need medical supplies, equipment and medicines as well as provide functions of canteens, laundry and catering facilities. In consequence, there should be no interruption in the supply chain for all outsourced materials to be required during the recovery phase. Especially in disasters and emergencies affecting large areas such as floods and earthquakes, significant disruptions and delays may occur in the supply chain.
- **Short and Long Term Plans:** When the recovery phase is started, short and long term plans should be prepared for repairs in health institutions that have suffered structural damage after disaster and emergency. Short-term plans should be prepared for early start of the service and long-term plans should be prepared for more comprehensive and safe performance of the service. These plans may include renewal and diversification of the equipment of the hospital, as well as new annex buildings or new departments to be added to the building.
- **Experience:** The greatest guiding factor for these plans created during the recovery phase is the experiences that reveal the material and manpower needed during disasters and emergencies. In consequence, it is the most appropriate method to evaluate and decide on long term plans by a joint commission.
- **Healthcare Personnel:** The pillar of health workers, one of the most important components of the health institution, should not be ignored in the recovery phase. Precautions and support should be planned for the personnel basing on the problems experienced during the disaster and emergency and taking into account the traumas experienced by them.
- **Support Programmes and Trainings:** In order to increase the disaster and emergency awareness of the personnel during the recovery phase, support programmes and trainings for all employees should be provided within the scope of this plan and experts from other institutions should be invited to increase the motivation of the personnel when required.
- **Annual Drills:** Finally, disasters and emergencies that may recur during the recovery phase should be taken into consideration and annual drills should be planned accordingly. For example, in our hospitals in the Black Sea region, where flood disasters occur frequently, drills related to flooding and inundation scenarios come to the forefront, while in eastern provinces, you should plan drill scenarios that take into account the impact of harsh winter conditions on hospitals and anticipate possible disruptions. Likewise, considering the possibility of migration, the recovery phase for the hospitals in southeastern cities should be planned by taking into account possible refugee flow scenarios and the burden they will cause to the hospital.

Chapter II
Implementations

Communication in Disasters and Emergencies

General Means of Communication

Communication is one of the difficulties encountered in response to disasters and emergencies. Failure to provide communication in a disaster and emergency causes much bigger problems. Communication problems generally occur in all disasters and emergencies, big or small. Physical damage and inadequacy of the communication infrastructure and network lead to the inability to use some means of communication that can be used normally in disaster and emergency.

In our country, the Turkish Disaster Response Plan (TAMP) prepared by AFAD (Presidency of Disaster and Emergency Management) states that communication systems may be interrupted during disasters and emergencies. The Ministry of Transport and Infrastructure is responsible for the coordination to maintain uninterrupted and secure communication at national and local level during disasters and emergencies. A National Level Communication Plan was established by the General Directorate of Communication (HGM) in 2015 for disaster and emergency communication in Turkiye.

In hospitals, communication during disaster and emergency is much more important. In particular, interruption or decrease of communication in the building for any reason may prevent the internal operation of the institution to a great extent. Remember that internal announcement system is of great importance for building evacuation and general announcements during disasters and emergencies.

In case of an extraordinary situation, the power failure in the building should not prevent the announcement system from operating. In consequence, the UPS (Uninterruptible Power Supply) system should supply power for the announcement system, like intensive care and operating room and should not be affected by general failures. Furthermore, this system should be able to make announcements with remote access system from outside the building. Especially in cases which require evacuation of the building, this system is of serious importance.

Announcement system in health institutions is generally limited to the inside of the building and does not provide service in areas outside the building. However, in order to direct the crowd in the garden or parking lots or the patients and their relatives waiting in the garden during a disaster and emergency, all announcements should be heard. In consequence, loudspeakers of internal announcement system should be deployed outside the building during the planning phase so that the same announcement can be heard outdoors as well.

As security, management, technical services and similar units may need instant announcements, some hand megaphones should also be available to meet this need in addition to general announcements. According to the size of the health facility and the need in the open fields to

be used, the features and numbers of these devices should be specified at the planning stage and the personnel should be trained about use of them through drills.

Other Means of Communication

Nowadays, there are various means of communication tools used by coordinators of disaster and emergency and persons in charge in disasters. Some of these means are used in the preparedness and organization phase and some of them in the response phase. Special means of communication can be used in all stages of disasters and emergencies.

Wireless Systems

Means of wireless communication that can function as both transmitter and receiver are called radios. These systems provide wireless communication via electromagnetic waves. Radio communication is divided into simplex (close channel) and relay (repeater) depending on how the communication channel is used as a transmitter and receiver. The other user waits in listening mode and speaks when it is his/her turn. As the infrastructure may be damaged in case of a disaster, simplex communication system is generally used. The relay repeats this message with higher power over another frequency and sends it to the desired location. This communication system makes it possible to communicate over long distance. When relays are placed in high positions, it enables communication even when the radios cannot see each other.

Simplex radio systems are used in almost all health institutions, especially by security personnel. These devices can also be easily used in technical services, management units and open field health facilities to be established in a disaster environment, provided that they are used through different channels. Each health facility should provide sufficient amount of these devices for close communication over different channels according to its size and structure and provide necessary training to its personnel.

The most common area where radios are used in the health system is **112 EMERGENCY CALL** system. Especially in times of disasters, this contact with 112 is of great importance to transmit incoming patient information and transfers from the institution to **112 COMMAND CONTROL CENTRE.**

It is of great importance to install the fixed radio of this system outside the building and in a place not exposed to any damage. As especially handheld radios will need new batteries and power charge in long-term use, the chargers of at least two of the devices used by the hospital should be backed up in the area where the fixed radios are located, and the electricity supply of this system should be planned independently from the city and building electricity system. For the province of Istanbul, a total of one hundred containers, called **UMKE containers,** distributed to public hospitals can be utilised for this need. It is seen that this practice is not yet implemented in most hospitals.

It is of great importance to use UMKE containers as a second command centre especially in disasters and emergencies and store other devices, office furniture and stationery materials that will be needed for the operation of the command team in this area.

Fixed Telephone Systems

When fixed telephone systems are accessible, they can be used in all areas of disaster and emergency operations. However, these systems may experience disruptions because of network damage and insufficient capacity during disasters and emergencies, and problems arising from insufficient capacity may occur and the fact that they cannot be used outside certain locations is a serious limitation. Fixed phones, which have an important function when they are not damaged, have a wider usage area than mobile phones. They can meet a serious need, especially with lists containing the information of people and institutions that need to be contacted. The fact that the telephones are wireless telephones instead of wired telephones offers an important advantage. Consideration of this issue while planning will provide great convenience in disasters and emergencies.

Satellite Phones and Satellite Systems

There are more than 150 communication satellites in the world that can be used for communication in disasters and emergencies. AFAD is able to communicate with the Disaster and Emergency Management Centres of 81 cities in Turkiye through these systems and satellite phones. These systems are a newer application compared to other communication systems. It is of great importance that they provide uninterrupted communication even when all kinds of infrastructures are damaged and other possibilities disappear. However, as these systems also operate outside of disasters and emergencies, they are devices which use must be decided in line with the needs of the institutionsdue to serious subscription fees. Although they are not required for every health facility, they can be procured for critical personnel and institutions in line with the decision of Provincial Health Directorates. Although the fact that handheld terminals cannot work indoors unless they can see the satellite is a serious disadvantage, this problem can be overcome with outdoor units. In consequence, coordination with the Provincial Health Directorate and 112 should be assured in the planning of satellite telephone systems.

Internet Systems

Internet systems, which have an important place in today's communication environment, contribute to the diversification of communication and facilitate the transfer of information to a great extent. In consequence, the survival of the internet infrastructure in disasters and emergencies is of great importance for data transfer. Particularly when it is required to evacuate health facilities, great importance should be attached to the availability of the internet infrastructure of the UMKE containers mentioned above and the provision of office supplies such as computers, printers, electrical

equipment and office furniture that will be needed for the operation of this system. Furthermore, external data banks and internet connections should be planned to store patient information, employee information and the information of patients and their relatives who will come during disasters and emergencies.

DECT Telephone Systems

DECT (Digital Enhanced Cordless Telecommunication), i.e. digitally enhanced cordless telecommunication telephone systems are widely used in health institutions. Although they are inadequate in connection with external institutions because of limited access distances, they take over a serious burden in internal communication. The use of fixed numbers, which are known by everyone working in the institution, gains great importance during disasters and emergencies. It is important that these phones, which have various functions, are backed up in UMKE containers to be used especially during disasters and emergencies in order to hand over them to the managers and units that will come afterwards during the rapid abandonment of the buildings to ensure the continuity of communication. As these devices may need to be charged outside the building, chargers should be made available in their containers.

Mobile Phone Systems

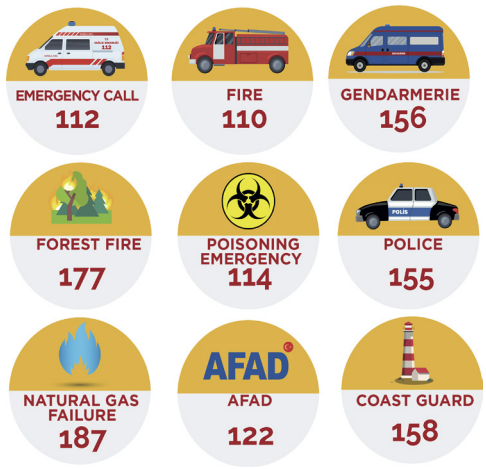
Today, data and image transfer via mobile phone communication continues to develop rapidly. The capacities and diversity of the devices bring them to an important position in communication.

In consequence, there have been fixed mobile phone numbers assigned to hospitals and crisis centres for a long time. These phones meet a serious need even outside of major local disasters and emergencies, but as they work with the base station system when the number of users in a certain area increases excessively, they cannot be reached due to density, causing communication to be interrupted. If the buildings containing the transfer units called base stations collapse or the poles are damaged or the power supplies fail, these devices become unusable. Therefore it cannot be said, that they are completely safe for disaster and emergency environments. In many recent earthquake events, it has been observed that mobile phone communication was interrupted. Hence, alternative communication systems should be included in the planning.

Issues to Be Considered Regarding the Communication System

The issues to be considered with respect to the communication system during a disaster and emergency are listed below:

- Internal communication systems of hospitals should be established with the anticipation that external communication system of hospitals would be interrupted or disrupted during disaster and emergency. To this end, megaphone, public announcement system, computers, internal line telephones, regional radio networks and other call systems can be used. Some of these systems should be reserved for use only during disasters and emergencies.
- The fact that communication centres are located in or very close to the incident management centres is of critical importance for the management of the incident.
- Telephone and address information of all personnel assigned in the Hospital Disaster and Emergency Plan should be included as an additional file.



- Furthermore, telephone and address information of AFAD, Fire Brigade, National Medical Rescue Teams (UMKE), Command Control Centre 112, Health Disaster Coordination Centre of Provincial Health Directorate, Crisis Coordination Centre, District Municipality, Electricity Company, Police, Military Units and similar institutions and organizations that will require cooperation during disaster and emergency should be included in the disaster and emergency plan as an additional file.
- In disasters and emergencies, use of radios for communication becomes a priority. The radios to be used should be specified in the Hospital Disaster and Emergency Plan according to the number of personnel assigned in the active area. An emergency-specific telephone number should be assigned by the hospital administration.
- In order for the personnel and managers to use the internal communication system at the time of the incident, they should be familiar with the use of radios. In consequence, the fact that the hospital management team and the personnel working in critical units can use radios in normal times will facilitate use of radios in disasters and emergencies.
- In all drills, by considering as if mobile phones are not working, all communication should be done via radios.
- In case of possible accidents, the main materials such as antennas, cables and plugs, which can be easily damaged and are necessary for the operation of devices, should be backed up. For example, it is important to back up basic auxiliary materials such as spare battery and antenna for radios, mouse and cartridge for computers, triple socket and plug for electrical devices.
- Keep in mind, that the communication centre is the heart of the whole system in disaster and emergency management. In consequence, all the needs such as computer, printer, colour photocopy, spare toner and office supplies should be made available in this centre in abundance.
- A hardcopy and softcopy of the Hospital Disaster and Emergency Plan, civil defence plan and similar documents should be available in the communication centre.
- Important call records should be kept by a personnel to be assigned in the communication centre to show the date, time, person and number.
- Numbers of the DECT phones and radios to be used in case mobile phones do not work, should be recorded in terms of who will use them and the user codes.
- Especially during the use of radios, the channel through which the relevant persons will make calls should be determined in advance and notified to the persons.
- It should be stated that the personnel working

in the communication centre should transfer the ongoing operations in writing during the shift change or relocation and it should be ensured that there is a notebook or recording system to keep detailed notes.

- The battery requiments of the handheld megaphones to be used and their charge should not be forgotten.
- Heating and lighting requirements of the communication centre should be provided in advance and kept ready for use.
- Disaster and emergency communication should start as soon as being informed about occurrence of the disaster or emergency.
- The first announcement should be made to the hospital personnel and patients with the help of relevant codes primarily from the central announcement system, as soon as the information of the disaster and emergency situation is received.
- The management team should gather in the area to be used as an incident management centre or communication centre.
- All devices in the communication centre should be activated and a decision should be made on the use of inoperative equipment.
- Decisions concerning the whole institution such as fire, multiple case application and evacuation should be announced from the central announcement system within the knowledge of the manager.
- In case fixed terrestrial lines do not work, alternative communication channels to be used should be determined.
- The radio number, the channels to be used and the management codes to be required urgently should be written and attached on the back side of the radios suitable for these conditions.
- All users should be reminded that they should communicate within the hierarchy in accordance with the management chart shown in the Hospital Disaster and Emergency Plan.
- Communication systems of the teams coming from external institutions for assistance, the radio channel and codes they use, should be learnt from the first moment and shared with the management.
- The code and channel information and contact numbers of the health institution managers should be given to the external teams coming to help.
- Precautions against possible power failure should not be forgotten: spare fuel, accumulator, battery, solar panel, wind turbine etc.
- A person should be assigned to record important incidents in the communication centre and a record should be taken.

Remember that communication systems are developing and diversifying day by day. It is of great importance that these systems can be used in disasters and emergencies. In consequence, they should be kept outside the main buildings and inside the places so that they will not get damaged and they should be checked monthly to ensure that they are active. Where appropriate, UMKE container-style structures should be considered as communication centres and these equipment should be kept active with the necessary devices and energy sources.

Every environment where communication is absent or interrupted causes the disaster and emergency situation to become bigger and the subsequent problems to become more destructive. In consequence, the importance of backup communication systems in disasters and emergencies should not be forgotten in planning.

Training Practices

In this part of the Guide, all the information and documents that the reader will need during the preparation of a training are given collectively by addressing the characteristics of the trainings, the issues to be considered in training practices, the workflow chart of the training and finally the problems that may occur in the practical trainings.

General Information

Today, disaster and emergency preparedness starts with personnel training. However, at this point, two very confused terms should be well defined: Education and Training. As there is a very thin line between these two concepts, and there are serious problems in their understanding and implementation. The education process starts with the purpose, continues with the teaching/learning activities and is completed with evaluation. Teaching methods used in education may vary from culture to culture, but they do not change the process.

As a result of the confusion between education and training, it is observed in many cases that a subject of training remains only at the education stage and the desired result is not obtained. Education aims to eliminate the deficiency in this subject by giving any information to the person. Training, on the other hand, should include the application of the information in addition to the information given and should provide changes in the way of responding of the person to the events that happen him/her as well as in his/her life and behaviour.

For example, teaching certain information to people about earthquake will fill the knowledge deficiency of people in this field. However, training on earthquake make people perceive possible risks, problems to be experienced and solutions together, making a structural change in their lifestyles. This will consequently minimise possible damages. If the training does not cause a permanent change in a person's life, it means that it has not achieved its purpose.

The first step in initiating disaster and emergency preparedness in an organization should be the planning of trainings. Training is the most important supportive activity for the implementation of planning processes. **The most important point that should not be overlooked in disaster and emergency planning is that disaster and emergency trainings should start at home.** Individual disaster and emergency preparedness of employees and patients are of great importance in disaster and emergency preparedness.

In disasters and emergencies, the personnel working in the health institution cannot be expected to provide an efficient service without ensuring the safety of themselves and their families. Trainings on individual disaster and emergency preparedness are, therefore, of great importance. Trainings including spouses and children should be organised in the health institution about disaster and emergency preparedness and these trainings should be repeated at certain intervals.

While planning these trainings, the target to be achieved after the training should be determined precisely. The trainings to be given may vary according to the needs of the institution and the activities designed within the scope of the plan. Training topics such as individual disaster and emergency preparedness, fire extinguishing, search and rescue, CBRN, disaster and emergency medicine and triage techniques may need to be included. Such trainings should not be expected

to be given by the same people and different trainers from appropriate institutions should be included in hospital training.

When planning training, variables such as training presentation techniques, training materials, need for training and training time should be taken into consideration. Furthermore, when the age characteristics of the groups receiving training are taken into account, classification can be made as **Trainings for Children** and **Trainings for Adults;** when vocational trainings are taken into consideration, classification can be made as **Public Trainings** and **Personnel Trainings.** When it comes to training adults, special approaches need to be applied. Adults are responsible for themselves as well as their families, their environment and their work and consequently their learning situations differ from those of children and young people.

It is not a correct approach to use all the methods used in trainings for adults as in trainings for children. This approach may negatively affect the success of training. In the trainings for children, for example, the duration of the training should not exceed 20 minutes and it should be given in the game form, whereas it is of great importance to plan trainings of maximum 40 minutes for adults in terms of efficiency. Furthermore, it is necessary to pay attention to the element of fear that the children will perceive in disaster issues during trainings and the event should be considered as a process of gaining habits in a game atmosphere.

Adults should be clearly and explicitly told why this training is needed, which needs are met and where they will need the given information against which possible hazards. In general, adults have difficulty in listening to and perceiving a training that they do not believe its necessity and they also do not show the necessary care.

Exemplifying the dangers and risks addressed with painful experiences and supporting them with visuals, when necessary, increases the interest in the training and makes the listeners pay more attention to the subject. The videos shown at certain intervals make a great contribution to the understanding of the subject. Trainings can be analysed under two main headings;

- Theoretical trainings
- Practical trainings

Theoretical Trainings

In order to ensure that the training is utilised in the best way, the training content should be carefully prepared and all details should be planned. With theoretical training, general and numerical information should be given in a permanent way and the participant group should be prepared for the drills to be carried out with practical training. The main features to be considered in theoretical trainings are as follows:

1. **Motivation:** Firstly, make sure that the group to be trained is willing.
2. **Seating Arrangement:** Seating arrangement is important in terms of effective communi-cation and eye contact in the training environ-ment. In the absence of a contrary require-ment, a U-seating arrangement should be formed with groups of maximum 20 persons.
3. **Level of Knowledge:** Determining the knowledge level of the participant group on the subject before the training and planning the training according to this level provides better results. In this regard, pre-test applications are a good guide for the person who will give the training and at the same time, they provide a measurable value in terms of what kind of change is achieved at the end of the training.

4. **Cultural Environment and Education Level:** The fact that the people to be trained are from a similar cultural environment or have a similar level of education makes the training more efficient and thus the group interest is not dispersed. For example, in a general training to be given in a hospital, the presence of maintenance and security personnel, nurses and doctors in the same group may cause difficulties in providing training. In such cases, a more effective result can be obtained by training health personnel and non-health personnel in separate groups.
5. **Content of the Training:** While preparing the content, selection of the subjects in the fields of interest of the participants is of great importance for efficiency of the training. Addressing the topic of health management during disasters and emergencies for a group of non-health personnel, for example, will cause both a decrease in interest and insufficient understanding of the subject.
6. **Training Materials:** During the preparation of the training, it is of great importance for the participating personnel that the training materials are not too complex and that the selected visuals and videos are presented in integrity with the subject narration. In this respect, the Training Skills Training within the scope of ASHEP (Emergency Health Services Training Programme) organised by the Ministry of Health should be examined as an example. It is recommended that the persons who will provide training receive such trainings beforehand.
7. **Selection of Personnel:** Selection of the personnel to provide training is of great importance for the drills and trainings. Selection of personnel who have no experience or very short-term experience in the content of the training as trainers causes considerable loss of time and money. People who are considered as trainers should have sufficient knowledge as well as the ability and intellectual structure to transfer their knowledge. Trainer candidates who have these

characteristics should also be provided with a course on training techniques, be certified and attend meetings under the title of trainer for new updates in the subsequent years.

8. **Objective:** When planning the training, it should be well defined what the training aims to achieve and what the participants are expected to learn. These should be clearly and unambiguously known by the relevant management as well as by the trainers and the personnel being trained.
9. **Training Hours:** The time of the trainings is of particular importance; for example, if the personnel who have left the night shift start the training the next day without any rest, it causes lack of attention and incomprehension of the subject. Similarly, in trainings held close to the end of working hours, uneasiness and lack of interest are observed in the people who will transfer the shift or use the shuttle service to go home.
10. **Assessment:** At the end of the training, re-assessment should be made to determine how much of the training has been understood, in which subjects the lack of information continues, and if there is more than one trainer, which trainer is better understood. Making the necessary changes in the next training in the light of this information will be of great benefit.
11. **Refreshing Trainings:** It should be kept in mind that the knowledge and skills acquired in one-time trainings on any subject are forgotten after a while if they are not used. Hence it is of great benefit to refresh the old training in summary or have the practices done again before the refreshing trainings or similar trainings.

Keep in mind that all these steps are important. In order to make more efficient use of time and economic resources allocated to training, the relevant topics should be examined and processed in detail.

Practical Trainings

Putting the knowledge and skills gained after theoretical training into practice is as important as the training itself. Practical trainings can be a repetition of a previous training, or they can be in the form of putting newly acquired knowledge into practice. In both cases, the issues to be considered before the practice are as follows:

1. **Refreshing:** The theoretical training previously received or the information on the subject to be developed should be renewed with a short repetition before the application. This should not be an exact repetition of the subject, but a brief summary or a reminder of the main topics.
2. **Group Participation:** In the practical trainings, group participation should not exceed 10 people, unless otherwise required.
3. **Practice:** All participants should perform the necessary procedures.
4. **Troubleshooting:** The defects in the practices made under the supervision of the instructor should be corrected by explaining them and they should be practiced again.
5. **Assessment:** Problems in the practical training should be visualised as far as possible and assessed collectively after the training.

Training on Individual Disaster and Emergency Preparedness

When making hospital disaster and emergency plans, the awareness of all stakeholders on this issue is of great importance. It will present disadvantages if the hospital includes only its own preparations in disaster and emergency planning especially against large-scale events such as earthquakes, floods, prolonged power outages and epidemics that involve a whole region.

Remember that not only the hospital but also employees, external institutions from which services are received or private or public institutions that will work together during the event should be prepared and have their own plans with respect to the disaster and emergency plan of a hospital. In large-scale disasters and emergencies involving the whole city or region, it is of great importance for the system to be able to work/remain operational and the personnel and the patients and their relatives are also prepared. In relatively small-scale incidents outside metropolises, it is of great benefit that the health personnel in the region exposed to disaster and emergency should be also considered as disaster victims and planning should be made in this respect. Considering that the health personnel reside in the region in question, they should not be expected to provide adequate service without assurance safety of their own residences, families and children.

For successful implementation of the Hospital Disaster and Emergency Plan, the employees of the hospital should receive trainings on individual preparedness for various disasters and emergencies. These trainings will both reduce the damage to be experienced by the employees during a large-scale disaster and emergency and will make them more efficient for their own institutions in the implementation of the disaster plan. In consequence, trainings to ensure the individual preparedness of the employees for disasters and emergencies such as earthquake, flood, CBRN, fire and long-term power outages should be provided by the institution or they should be provided with necessary trainings by relevant expert organizations. Family disaster and emergency plans to be prepared by employees together with their families are extremely

important for the proper functioning of health institutions in case of incidents. The topics to be considered during individual disaster and emergency preparations are listed below:

- Considering that the possible disaster may occur during and outside the working hours, separate planning should be made according to both situations.
- The elderly and children staying alone at home should be taught how to call the ambulance and fire brigade in an extraordinary situation and a suitable description of the location of the house should be written and attached onto the telephone.
- Elderly and children staying alone at home should be taught that they should inform their nearest neighbours in case of an emergency.
- In case of disasters and emergencies such as earthquake and fire, especially bulky items and objects such as cupboards, televisions, sideboards, etc. should be fixed. To this end, it will be appropriate to do a general practice of domestic **YORA (Reduction of Non-Structural Risks).**
- Especially for school-age children, the decision of whether the family will come to school or the child will come home after a disaster and emergency should be taken together with all family members by taking into consideration the age of the child and the distance of the house (see *Disaster and Emergency Management Planning Guide for Educational Institutions* for the related student-parent handover procedures).
- Decision should be taken on how family members will communicate, during or after disaster and emergency, how they will meet and what the alternative solution might be..
- In case of separation of family members, decision should be made on how to reach the relatives outside the city.
- During this planning, it should be taken into consideration that mobile phones may not operate and transportation will be seriously disrupted.
- A disaster and emergency kit containing the materials to be needed during and after disaster and emergency should be prepared jointly with the family members and placed near the entrance door of the house.
- It should be assured that the disaster and emergency kit contains medicines or prescriptions used by family members.
- In case of sudden abandonment of the house, an area near the entrance door should be created to hold house key, car key, wallet and mobile phones, making family members aware of it.
- For family members staying in separate rooms, slippers, lighting devices and whistles should be within easy reach.
- It should be decided how children and elderly people will be transported by whom in case of possible disasters and emergencies.
- Family members should wear jewellery such as a necklace, dog tag or watch with their identity information and a contact number in case they lose control or become unconscious during a disaster and emergency.
- During the disaster and emergency planning phase for family, important documents such as identity cards, diplomas, family photographs and title deeds should be scanned, transferred to digital media and stored in order to meet the need after the disaster and emergency.
- For children and elderly people who might be

alone at home during a disaster and emergency, it should be discussed about possible risks and urgent works that need to be done and preparations should be made together. Especially how to act during earthquake and fire should be taught practically (for detailed information, see *Disaster and Emergency Management Planning Guide for Educational Institutions* and *Disaster and Emergency Planning Guide for People with Disabilities*).

- All family adults should be taught how to switch off electricity and natural gas valves when leaving the building in case of disaster and emergency.
- Disaster and emergency kit, individual first aid, use of fire extinguisher and similar subjects should be explained in accordance with the age and education levels of individuals.
- If the family has a vehicle, a spare disaster and emergency kit containing clothes for all individuals and necessary materials especially for children should be placed inside it (for details on the subject, see *Disaster and Emergency Planning Guide for People with Disabilities*).
- All these preparations should be reviewed by family members at certain intervals and deficiencies should be completed.

As it is obvious, individual disaster and emergency preparedness and Hospital Disaster and Emergency Plan implementations overlap one-to-one. Trainings on individual disaster and emergency preparedness will improve people's predisposition to the Hospital Disaster and Emergency Plan, making implementation easier. Personnel trainings are, therefore, of great importance.

Drill Practices

What is a Drill?

It is a practice carried out in order to test the appropriateness, adequacy and timeliness of the response actions planned to be performed in a disaster or emergency by adhering to a scenario under conditions as close to reality as possible. Drills are necessary both to test the disaster and emergency plan and train the personnel.

The main purpose of drills is to reveal the risks in the relevant health institution or hospital, show how to cope with these risks and prevent the disruptions that may arise in the real incident by ensuring that different solution options are found in the face of the incident. Drills are, therefore, one of the most effective training methods.

Suggestions of Drill Scenario:

1. Fire

2. Earthquake

3. Landslide hazard

4. Terrorism/bomb threat

5. Chemical accidents

6. Flood /deluge

7. Explosion

Types of Drills

Types of drills are divided into three according to the type of implementation:

- Desk Drill
- Practical Drill
- General Drill

It has been deemed appropriate by the Ministry to conduct at least one desk drill and one field/practical drill every year to test the disaster and emergency plan made especially for health institutions.

Desk Drills

A desk drill is a practical drill in which all managers of the relevant unit are present together to evaluate all processes together with an initial scenario and a time-skipping system (5 minutes for 1 hour or 10 minutes for 1 day).

The drill preparedness process does not differ significantly from other drills. However, unlike the practical drill, none of the participants are informed about the scenario beforehand, instead they are informed simultaneously during the drill. All actions taken, including date and time, are recorded. Existing plans and procedures are utilised in order that participants demonstrate appropriate managerial approaches. The aim is to make participants engage in the process, make decisions and coordinate it. After the drill, answers to questions such as "What did we plan to do?", "What problems were experienced?", "What were we able to achieve?", "What can be done in the future?" are sought and lessons learnt are identified. All participants should be asked to fill in assessment forms for feedback and a general assessment meeting should be held after the drill.

Practical Drills

A practical drill is carried out to observe the training and performance of a certain part of the relevant institution without interrupting the main operation.

The practice is carried out with the personnel who have been previously trained by adhering to a certain scenario. The difference from the general drill is that only a certain unit and a certain group of personnel participate in the drill. All stages of the drill have the same characteristics as the general drill. The aim is to train and improve the performance of a single unit or a special unit (such as evacuation drill for intensive care or for operating room).

General Drills

General drills are drills during which all stages of a certain scenario for different units are practiced with the participation of all institutions or branches. In these drills, each branch is expected to perform its own practices depending on a general scenario. A general drill on an earthquake scenario, for example, covers all departments and activities of the hospital, such as operating rooms, technical service, evacuation of building, supply of medical materials from warehouses, transport of patients by 112 as well as emergency service.

As general drills are very comprehensive, they require a serious preparedness and extensive training process, consisting of three steps:

- Drill Preparedness
- Drill Practice
- Evaluation

An incorrect implementation in any of these steps may have administrative and judicial consequences for many units, including the management of the organization. In consequence, all steps in the drill process should be carefully reviewed and no one should be omitted. To this end, this chapter deals with the steps of drill preparedness in detail and provides a sample drill evaluation form.

Drill evaluation forms vary according to the structure, the nature of the drill to be carried out and the type of training intended. For this reason, additions and deletions can be made in the sample

form at the end of the chapter. These should be determined by the drill Preparation Commission.

Phases of Drills

This section briefly introduces the steps between drill preparedness and drill evaluation. It should be noted that additions or deletions may be made in the relevant headings by the drill commission.

Drill Preparedness: It constitutes one of the most important steps in the drill planning. In addition to the drills that organizations are legally obliged to perform, there is also a structure deemed appropriate by the management team with an aim to prepare against possible risks.

As mentioned before, the main purpose of the drills is to reveal the risks of the incident/ hospital, show how to cope with these risks and prevent the interruptions that may arise in the real incident by finding different solution options in the face of the incident and determine the reactions of the personnel. A detailed preparedness to be made at this stage will ensure that a realistic approach is displayed and the possible risks to arise are recognised.

It is of great importance that the procedures and planning in the Preparedness Phase are carried out by a large team including the management of the organization and the unit responsible for the drill.

Drill Permission: Before planning for the drill, permission of the senior supervisors should be sought. As this permission is for the conduct of the drill, it consists of a preliminary permission that does not contain details. Detailed work starts after this stage. In the permission notice, the estimated date of the drill and the estimated scenario are specified. It is more appropriate to conduct a drill with a different topic every year. In the Hospital Disaster and Emergency Plan prepared by the institutions, there is also a section called Training and Drill Plan. At the approval stage, this plan is considered to be approved in a sense, but it would be better to get approval from the higher authorities regarding the date of the drill when the decision for the drill is taken.

Commission: Prior to the drill, a Drill Commission should be set up by the senior supervisor to prepare and implement the drill. The members of this commission vary according to the type of the drill. They are primarily responsible for all stages of the drill, for determination of the needs of their department and the ways of procurement and completion of the drill. Keeping the commission as large as possible increases the effectiveness and performance of the drill. The Commission determines the type of the drill and the required training content. Commission members should select the most appropriate scenario for the needs of the hospital.

Scenario: Drill scenarios should start with simple scenarious containing single subject and later on complex multi-subject scenarios should be created. In each drill scenario, the report and records of the previous drill should be used. When determining the appropriate scenario, regional characteristics, structural characteristics of the organization, possible risks and external factors should be taken into consideration. Regarding the selection of scenarios, it makes no difference whether it is a desk or a practical drill. The important thing is to ensure that as

many units and personnel as possible take part in the drill. It should not be forgotten that joint work may, if required, be possible according to the external components.

The points to be considered at this stage are that the scenario to be used should be in line with the realities of the hospital and include the right risks; the personnel should have received training on this subject and the applicability of the scenario should be determined by the participating unit supervisors. In an institution that does not have a garden, for example, a scenario setting up a mobile hospital in the garden or stating that backup generators will be activated in an institution that cannot provide backup generator-sets is an indication that it will cause problems from the very beginning.

Units to Participate: In the drill scenario, only some of the relevant units in the institution may be included in the scenario and others may be excluded from the scenario depending on regional and seasonal reasons and the type of drill. The organization is not obliged to participate as a whole. The time and duration of the drill should be chosen in such a way that it will not interrupt the main operation as much as possible and the place of the drill should be determined accordingly. If we consider a hospital, for example, it would be appropriate to choose the hours when polyclinic services end.

Permission and Correspondence: After reaching an agreement on the date and time with the external organizations basing on the previous permission for the drill, the senior supervisors are informed about the issue and the final permission for the drill is obtained. A copy of the scenario is sent to the external organizations and senior supervisors for sharing before the drill. It is recommended to hold a meeting with external organizations before the drill. When these institutions make significant warnings about the drill related to their expertise, appropriate changes should be made in the scenario. Other institutions to be notified are

stakeholder institutions such as fire brigade, police, AFAD and provincial health directorate. In addition to these institutions, other health institutions can be offered to participate in this drill and plan their own drills on the same day in case of drill for evacuation of the patients and injured persons. Thus, the reaction/response and disruptions of stakeholder institutions during areal incident can be observed.

Checklists: As they are of fundamental importance for evaluation after drill, they should be prepared separately for each unit. Criteria should be measurable and adjustable. While time is important for some units, the quality and adequacy of the process may stand out in other units. Preparation of checklists by the relevant unit both strengthens the sense of involvement in the drill and reduces the possibility of error. The parameters/variables to be analysed are decided together with the relevant units. It is important that the same parameters/variables are taken as basis in the subsequent drills.

Evaluators: These are the people who fill in the checklists during the drill, but act as supervisors without interfering with the operation. The visual recording team is included in this group. As the imaging team is responsible for the recording procedures in the drill area, they are of great importance for the evaluation of the drill. It is a more appropriate solution to ensure impartiality and objectivity, if the evaluators do not work in the unit they supervise. In fact, it is preferable that all of the auditors and the visual recording teams come from another organization where they perform the same task.

Trainings: All officials to participate in the drill are informed about the scenario and drill tasks. Specific trainings can be given during this period. Participants should review the training content in order to ensure language unity in the drill. It is of great importance that the personnel to take part in the drill are trained or repeat before the drill with respect to carriage techniques, CBRN, CPR, use of specialised devices for technical personnel and similar issues in order to elaborate the subjects. Remember that drill is a training method and as much time as possible should be allocated for these procedures. In case of need, expert trainers from other institutions should be invited and the training of the personnel on this subject should be completed.

Logistics: All kinds of materials to be used during the drill such as clothing and printed materials should be made available before the drill. It is also of great importance to make available the off-drill materials used during the normal operation of the institution.

Training on materials to be used during the drill should be given in advance and any problems that may arise during use of them should be prevented. Special materials (CBRN suit, neck collar, technical devices, etc.) should be made available to the relevant personnel before the drill. Logistic materials to be used during the drill should be designed in a way not to harm any living beings and should include logistic measures that will not interrupt the general functioning. For example, the defibilator (heart rhythm device), which is required to be available in the emergency service during the

drill, should not be kept busy for a long time. Forms related to logistics should be checked in advance. Drill planning should be done early and procurement should be made for the supply of materials to be required in the organization.

The materials not used during normal service but will be required in disasters and emergencies should be checked regularly to ensure that they are in working/operational condition, that they do not expire or that the latest developments in the materials to meet this requirement are regularly followed. Especially when need of new materials arise as a result of changes in laws and regulations and technological developments, it is of great importance to supply them on time.

Information: The dates of the drill should be announced in different parts of the organization and all personnel and supervisors should be informed as early as possible before the drill. Patients and their relatives who may be present in the areas where the drill will take place should be specially informed about the day and subject of the drill. Likewise, security forces, press and local authority should also be notified. During the drill, patients and their relatives and personnel not to participate in the drill should be informed about the duration and type of the drill. Notification of the people living in the neighbourhood close to the health institution is another issue to be considered. In this respect, it is of great importance that posters indicating that a drill will be held in the institution are posted at the entrances of the building and in the nearby areas.

On the day of the drill, it is necessary to repeat the information inside and outside the building by means of the public announcement system before starting the drill. Especially for the polyclinic service, the patients and their relatives who applied to the institution that day and the newly admitted patients should be informed. Just as the beginning of the drill, the end of the drill should also be announced inside and outside the institution with the announcement system.

After the Drill: After the completion of the drill is announced with the announcement system some problems may occur, especially in the normalisation process of the institution. Hence the collection of the materials used in the drill, removal of the announcements posted in certain areas, notification of the inpatients, collection of the materials related to the drill in an appropriate way and delivery of them to the institution management by the authorities should be carried out in accordance with a certain plan. As this planning may vary depending on the size and type of the drill, this issue should be specifically dealt with and evaluated under the heading "Termination of the Drill".

Evaluation: It is the evaluation of the drill performance of the organization to determine whether the drill has achieved its purpose. The functionality of the drill and trainings, the performance of the personnel and the condition of the equipment used are evaluated. At the end of the drill, the drill is evaluated with the participation of the institution, senior supervisors and representatives from the reviewing authority. In addition to the drill report to be prepared by the institution, video and pictures of the drill, if any, are sent to the relevant higher units. After the end of the drill,

the hospital management and the drill commission come together and examine the images and control forms. An end-of-drill report is prepared about the problems experienced, the measures to be taken and the things to be done in the new period. During the creation of this report, feedback received from the participants of the drill, results of the examination of the forms and visual recordings are of great importance. Receiving feedback information about the drill from as many people as possible is very important for the validity of the result.

It is of great importance that the evaluation report to be prepared at the end of the drill is written in detail, indicating the problems, deficiencies and issues to be taken into consideration under separate headings in order to guide the trainings to be held later.

Evacuation Drill

The following is an example of an evacuation drill, detailing the steps of preparedness in the planning and implementation phase of the drill. These steps can be added or removed by the drill commission.

a) Preparedness in the Step of Drill Planning

- The type of drill to be implemented by the hospital management should be decided (desk drill/practical drill).
- A commission should be set up according to the type and subject of the drill. If it is, for example, decided to conduct an evacuation drill for intensive care, the commission should include the physician in charge of intensive care, nurse, occupational safety specialist, civil defence specialist/ supervisor, security supervisor, technical unit supervisor, data preparation personnel supervisor, etc. in addition to the hospital management.
- The scenario should be determined.
- Official permissions for the drill should be obtained from the relevant higher authorities.
- Persons to be assigned in the drill should be determined and notified in writing.
- Relevant trainings should be given to the assigned personnel.
- Materials to be used should be determined according to the type of the drill (stretcher, megaphone, wheelchair, etc.).
- Checklists should be generated.
- The quality and quantity of the personnel designated as supervisors/evaluators to use the checklists should be decided.
- It should be decided when (one week before, one day before, at the time of the drill), to whom, by whom and how (announcement, text, poster, etc.) the announcement of the drill will be made.

b) Preparedness in the Step of Implementation

Phase 1

- The place designated as Incident Management Centre should be checked in terms of materials and equipment and deficiencies should be completed (PC, printer, plan document, radio, DECT communication devices, disaster vests, etc.).
- Camera-recorders, cameras and people for visual recording should be determined.
- Materials for the drill should be made available (stretcher, megaphone, wheelchair, etc.) and responsible persons should be assigned.
- Notification should be made to the personnel,

patients and their relatives before the drill (announcement, poster, official letter, etc.).

- Supervisors/assessors should be appointed for the desk drill and evacuation drill. Checklists should be made available.

Phase 2

- Before the drill: None of the participants should be informed previously about the scenario; simultaneous notification should be made during the drill.
- Visuals and videos should also be used in the presentation and narration of scenario.
- All operations performed should be recorded by indicating the date and time.
- How communication will be made during the drill should be specified (radio, mobile phone, DECT etc.).
- The termination of the drill should be announced to all personnel and patients.
- General assessment should be made upon completion of the drill.
- Written summary reports should be prepared by the Team Chiefs (operation, finance, logistics, planning).
- Everyone participating in the drill should fill in the feedback form.
- After completion of the drill, the hospital management and the drill commission should come together to review the images and control forms.
- An End of Drill Report should be created regarding the problems experienced, the measures to be taken and what needs to be done in the new period.

Check Questions by the Drill Supervisor

No	Evaluation Questions	YES	NO	REMARK
1	Was there simultaneous briefing throughout the drill?			
2	Have all actions been recorded (date/time)?			
3	Did the participants demonstrate appropriate managerial approaches in line with the ERP (Emergency Response Plan)?			
4	Was the drill recorded with video and photographs?			
5	Have occupational safety measures been taken for the personnel participating in the drill?			
6	Were the start and completion of the drill notified by means of announcement?			
7	Was the Incident Management Centre (IMC) opened?			
8	Has the Incident Management Team been gathered?			
9	Were equipment (PC, printer, HAP documents, Hospital Disaster and Emergency Plan, radio etc.) at IMC sufficient?			
10	Was ERP activated?			
11	Were the reasons for AMP activation determined?			
12	Was Emergency Colour Code System used during activation of ERP?			
13	Did the positions/officials specified in the organizational chart take part in the drill?			
14	Was information flow assured between positions/officials?			
15	Were incident management tools (Workflow Instructions, SOPs, forms) used?			
16	Have the positions/officials (together with their sub-units) worked at different locations/places?			
17	Can simulated/virtual patients/injured people be distinguished from real patients?			
18	Was simulated/virtual patient/injured people make-up applied?			
19	Were those taking part in the drill distinguished from other hospital personnel?			
20	How much time took it for the internal firefighting/rescue/protection personnel of the hospital to reach the post?			

Check Questions by the Drill Supervisor (continued)

No	Evaluation Questions	YES	NO	REMARK
21	Has inter-institutional communication been established?			
22	Have specific areas been created?			
23	Has CBRN cases been decontaminated?			
24	Have incoming patients/injured persons been recorded?			
25	Was the patient been transferred properly?			
26	Were doctors/nurses called to the emergency service from other wards?			
27	Were personal protective equipment and materials used?			
28	Was the evacuation plan followed?			
29	Was the evacuation/assembly area used?			
30	Were the fire/evacuation stairs used?			
31	Were the lifts used?			
32	Were appropriate transport techniques used for evacuation of the patients/injured persons?			
33	Has a patient/injured list been created by counting patients, relatives and personnel in the evacuation/assembly area?			
34	Has it been checked that no persons remain in the affected area?			
35	Was there sufficient number of security personnel?			
36	Were entrances and exits kept under control?			
37	Was density control carried out for possible congestion?			
38	Was media management in place?			
39	Was traffic/transport control provided?			

Table 9. Check Questions for Drill Supervisor (form to be filled in by supervisors during the drill).

Management of Patients Who Require Dialysis Treatment in Disasters and Emergencies

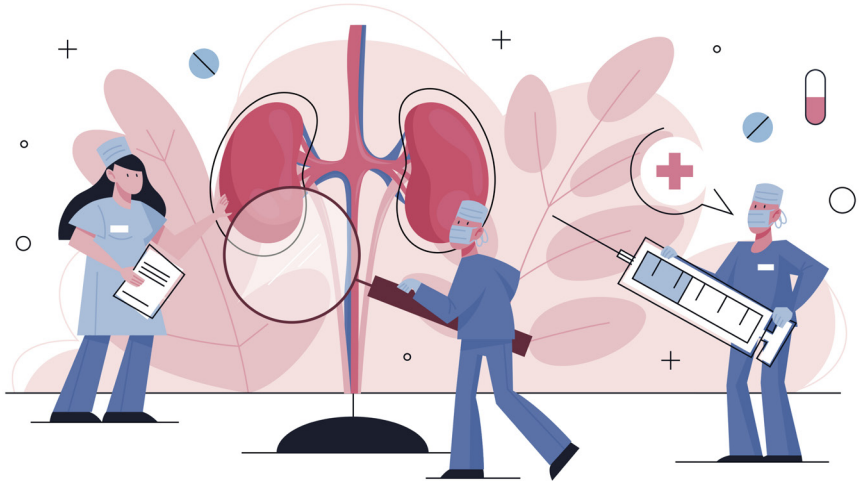
As Turkiye is located in an important earthquake zone, it is under the threat of a general mass disaster. We frequently encounter earthquake tremors and sometimes destructive earthquakes in almost every region of our country. All personnel and patients in the haemodialysis unit are adversely affected by earthquakes, destructive or not. After a devastating earthquake, there are many difficulties such as getting the haemodialysis unit back into operation, solution of communication with the patients and transfer of them, and supply of materials and medications. Furthermore, many patients require frequent haemodialysis because of renal failure associated with Crush syndrome (crush injury, significant tissue damage), which is seen in hospitalised earthquake victims. It should be planned in advance how the treatment of patients on the unit's chronic dialysis programme will continue when the haemodialysis unit of the hospital is not operational. If this is not done, there may be a risk of losing both existing and disaster-stricken patients as a result of not receiving dialysis treatment.

Considering all these conditions, it is understood how important it is to ensure cooperation with relevant institutions and organizations and to start internal planning in the hospital, training and drills before disasters and emergencies. As personnel in charge of dialysis and patients may change continuously, these practices should be repeated at certain intervals.

Preparedness and Planning before Disaster and Emergency

Before disasters such as earthquakes occur, both patients in chronic dialysis programmes and dialysis personnel (physicians, nurses and other assistant health personnel) should training on what to do during disasters and emergencies and an action plan should be established in this respect. This plan should include:

- **Rapid Separation of Patients from Dialysis Machines:** Physicians or nurses should release patients by closing the dialysis sets without removing the needles from the arm. Needle should never be removed until a safe place is reached.



- **Patients Can Detach themselves from the Machine if Necessary:** Patients must be trained to be able to do it by themselves. (For a sample brochure on this subject, see: http://www.nefroloji.org.tr/folders/file/crush_sendromu.pdf)
- **Direction to Safe Area:** The orientation of patients and/or the correct position in the life triangle (foetus) in which they should wait should be determined in advance.
- **Shift Plan after Disaster and Emergency:** The shift plan should be prepared with substitutes for the authorized officer and other personnel and should be regularly updated. In order to prevent burnout syndrome, medical personnel should not be allowed to work continuously without rest. A manager should monitor medical personnel for fatigue and decide when to rest.
- **Inventory of Dialyser/Dialysate Solution and Dialysis Set:** The inventory of medical supplies should be monitored regularly.
- **Communication with Patients or Relatives after Disaster and Emergency:** To this end, identity, address and telephone information of the patients as well as contact information of their relatives should be recorded altogether prior to the disaster and emergency. Considering that hospital records cannot be accessed during a disaster, it would be more appropriate to collect these records within the Provincial Health Directorate for easier organization. Furthermore, digitalisation of these records in a way that each hospital and professionals in charge of dialysis can access them remotely and in accordance with the legislation may be life-saving in disasters and emergencies.

Planning of Haemodialysis Centre after Disaster and Emergency

1. After a disaster and emergency, damage assessment should be conducted rapidly and inventory of materials should be checked and it should be understood whether dialysis service can remain functional.
2. Placement of chronic dialysis patients in other dialysis centres should be planned again: Especially after earthquakes with a magnitude of 6.4 and above, the death/injury rate of the population living in the incident area is around 25-30%, although it varies depending on various factors. Crush syndrome may develop in approximately 2-5% of injuries. This rate may increase even more in densely populated areas and areas with multi-storey buildings. Upon the start of search and rescue operations, earthquake victims pulled out of the rubble are rapidly brought to EMERGENCY services and those who develop crush syndrome require haemodialysis. The haemodialysis requirement of these patients was determined as 11.2+8.0 sessions per patient on average (11 sessions per patient on average depending on the duration) depending on the degree of acute kidney injury and recovery time. Haemodialysis units in hospitals (as soon as they are operational) will, therefore, need to accept these patients as a priority. Considering the expected number of acute patients, patients in the chronic haemodialysis programme of haemodialysis units in hospitals should be referred to external haemodialysis centres in the vicinity, even if temporarily. Hence the referral plan should be made in advance and renewed at regular intervals in order to avoid confusion during disaster and emergency.

3. In case of disaster and emergency, reducing the number of dialyses of patients on chronic dialysis programmes temporarily (2 instead of 3 or 1 instead of 2 times a week) or temporarily shortening the duration of dialysis (3 or 2 hours instead of 4 hours) does not create a significant problem.

General Logistics Planning of Medical Personnel and Material Aid

1. Blood donation calls should be envisaged and spread over a certain period of time in order to effectively direct the donation of blood products and prevent excessive and sometimes insufficient donation.
2. Available medical supplies should be used sparingly until the relief supplies from other regions reach the disaster area.
3. The amount of medical supplies to be used in the treatment of disaster victims with crush syndrome should be defined in advance in order to ensure availability in stocks and provide emergency aid to the disaster area from outside. The number of supplies should be calculated according to the expected amount of crush syndrome (Table 10). According to the data in the table, the medical aid required for the first three days of the disaster is 15,000 litres of crystalloid for 1,000 cases of crush syndrome, plus 45 kilograms of sodium polystyrene sulphonate (kayexalate) at a normal dose of 15 g/day per person even before first aid is organised. According to the experience basing on the Marmara earthquake, the number of dialysis sets and blood/blood products needed for 1,000 patients with crush syndrome is 8,250 and 13,000 respectively.
4. The most experienced personnel should be deployed in the first days of the disaster.

For the international Turkish Treatment Guide for patients with crush syndrome, see:

https://www.era-online.org/wp-content/uploads/2022/11/Crush-full-document-Turkish_0-1.pdf)

Transfusion	Number
Average blood transfusion/patient*	4.6 ± 9.0
Average FFP transfusion/patient*	4.4 ± 12.9
Average HA transfusion/patient*	4.0 ± 7.5
Dialysis	**Number**
HD session/patient	11.2 ± 8
HD session/patient (patients received + not received haemodialysis)	8.2 ± 8.4
Other	**Number**
Crystalloid	5109 ± 1711 ml/day
Kayexalate	15g/victim/day

*Patients with and without transfusion (Abbreviations: FFP: Fresh Frozen Plasma; HA: Human Albumin; HD: Haemodialysis)

Tablo 10. Amount of Medical Supplies Frequently Used in the Treatment of Patients with Crush Syndrome. The need for blood transfusion, haemodialysis and crystalloid (small molecule liquids) was calculated according to the experience basing on the Marmara earthquake; the amount of kayexalate (sodium polystyrene sulphonate) was estimated according to the data in the literature. (Sever, 2002)

5. Dialysis personnel from other centres or hospitals should be transferred from non-functional dialysis units to active units if required. Considering medical professionals, an ideal pre-assessment team should consist of 2 nephrologists (one for dialysis and one for medical conditions), 1 dialysis nurse and 1 technician. The patient monitoring team should include 1-2 nephrologists, 3-5 nurses and a technician. However, the composition of each team may vary according to local needs. After disaster, many dialysis centres become inoperable because of the damage in dialysis centres and the number of patients who require dialysis may increase rapidly within days. In order to meet the increasing need of dialysis, the personnel may be insufficient to deal with the workload. Hence dialysis personnel in defunct units should be distributed to the remaining undamaged/working units. Personnel support from local resources and from regions outside the disaster area and at international level should be planned to overcome this deficiency at the earliest period.

Planning of Follow-up and Treatment of Patients with Crush Syndrome in Disaster and Emergency

The follow-up and treatment of patients admitted to hospital with signs of crush syndrome should be performed in accordance with the accepted guidelines of trauma and acute kidney injury. The follow-up and treatment protocols of this group of patients should be prepared centrally in advance and a training programme should be organised previously for physicians and nurses in charge of the follow-up of these patients; treatment charts containing short practical approaches should be posted in the wards in printed form and distributed to the physicians and nurses in the form of pocket books/cards.

The post-rescue steps to be taken in the prevention of acute kidney injury secondary to crush syndrome and in the treatment of acute kidney injury when it occurs are shown in Figure 6.

In our country and worldwide, training on what should be done for the problems of renal diseases after mass disasters and active contribution to the process during mass disasters are provided by the **Renal Disaster Relief Task Force.**

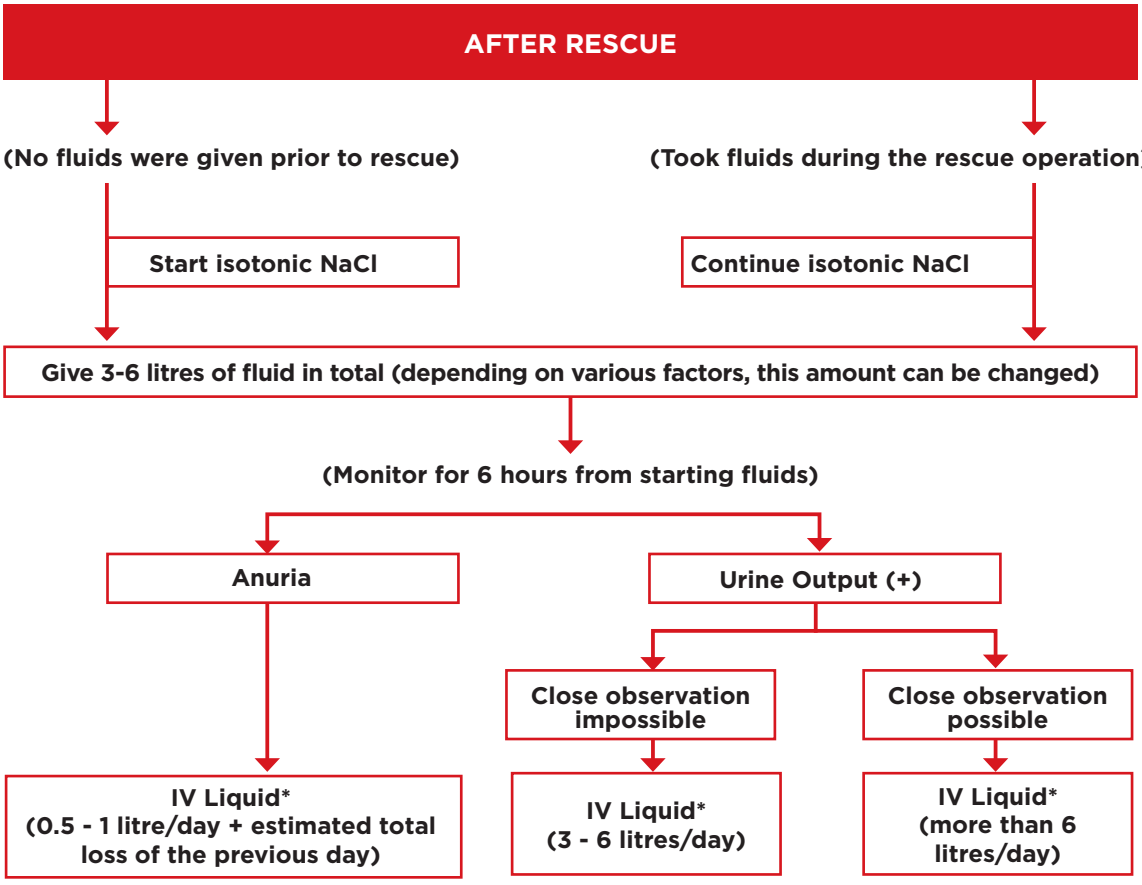


Figure 6. (Reference: Dr. Mehmet Şükrü Sever, Ezilme Sendromu: Dahili–Cerrahi–Adli ACİL'LER, 2020)

Renal Disaster Relief Task Force Structuring in Turkey and Worldwide

In earthquakes, the most common cause of death second to sudden death because of collapse/trapping is acute renal failure associated with crush syndrome, called as renal catastrophe. Crush syndrome is a condition that occurs as a result of muscle crushing (rhabdomyolysis) because of compression of extremities such as arms and legs under wreckage. Acute Kidney Injury (AKI) may occur with the earthquake victims who develop crush syndrome after being rescued out of the wreckage because of local effects of trauma as well as some substances such as myoglobin (iron and oxygen binding protein found in muscle tissue) which is released from the crushed muscles and circulates in excessive amounts.

This condition associated with crush syndrome after devastating earthquakes covering large areas is called "renal catastrophe". Furthermore, as soon as they are rescued out of the rubble, the excessive increase in the level of potassium in the blood released from the crushed musche cells into the bloodstream can lead to sudden death immediately after rescue, called "rescue death". These two important conditions, i.e. "renal catastrophe" and "rescue death", can lead to a large number of casualties

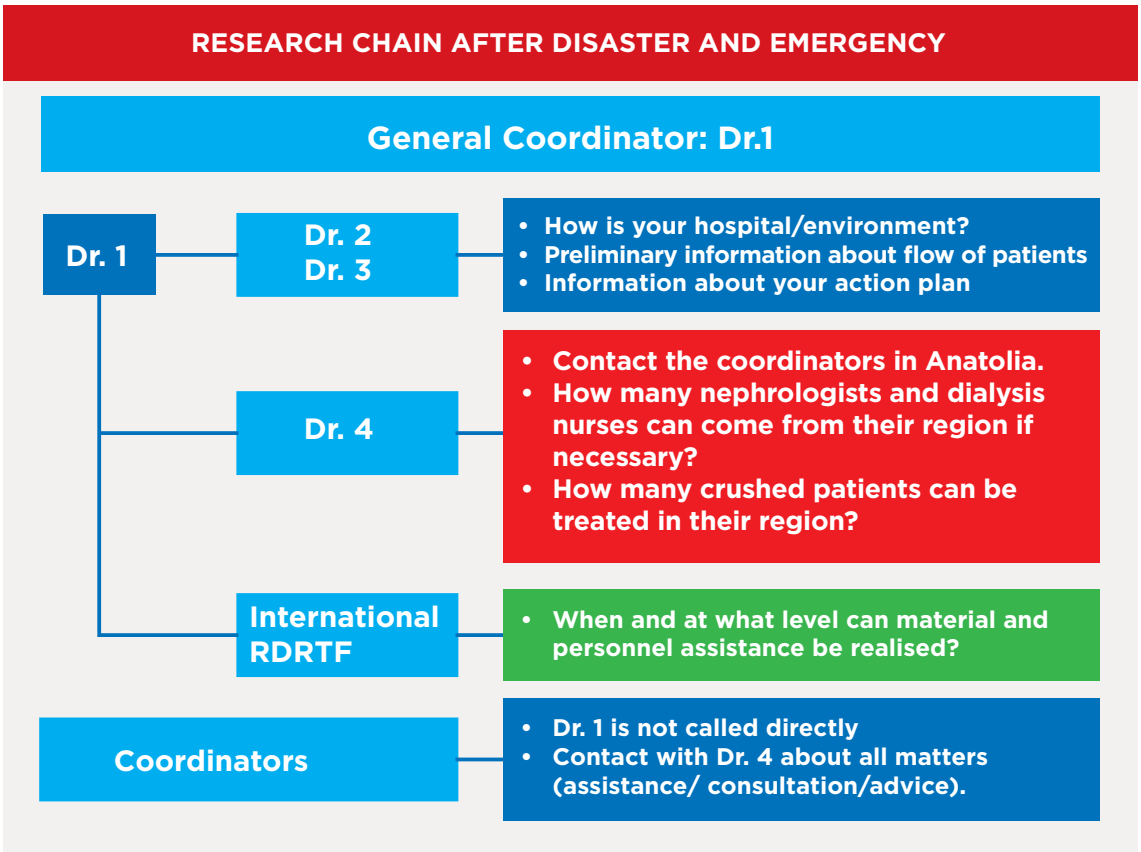


Figure 7. Renal Disaster Relief Task Force Coordination Scheme of the Turkish Society of Nephrology (TND).

after earthquakes which affect a great number of people. Crush syndrome may develop in 2-5% of all injured people in the region and in 30-50% of those with muscle crush (rhabdomyolysis).

These percentages correspond to large numbers in mass disasters. Hence, after earthquakes, starting from the search and rescue operations, trainings on what to do in the field and in the health institutions in order to prevent the development of "renal catastrophe" and "rescue death" of the rescued victims should be given in advance and they should actively contribute to the response process during earthquakes .

Renal Disaster Relief Task Force in the World

After the devastating earthquake of 6.8 magnitude in Armenia (1988), which is estimated to have caused nearly 100,000 casualties, it was observed that a large number of patients were lost due to the development of acute renal failure in a significant proportion of those who could be rescued and due to the lack of adequate dialysis services to provide supportive treatment to these earthquake victims. The **Renal Disaster Relief Task Force** was established by the **International Society of Nephrology (ISN).** The aim of the Renal Disaster Relief Task Force within ISN is to provide correct treatment of ABH (Acute Kidney Injury) associated with crush syndrome and necessary dialysis support in cooperation with local nephrologists when a devastating earthquake occurs anywhere in the world.

During the 1999 Marmara earthquake, they also provided support in our country and in the subsequent years they also provided support in the earthquakes of Bam in Iran, Kashmir in Pakistan, Gujarat in India and in Haiti.

Renal Disaster Relief Task Force in Turkiye

Following the 1999 Marmara earthquake, the Renal Disaster Force was established under the umbrella of **Turkish Society of Nephrology** (TND). The objectives of the Renal Disaster Force are to:

1. Disseminate (to all healthcare professionals and, if required, local community) the knowledge of the correct emergency response to crush syndrome throughout Turkiye and especially in areas with high risk of earthquake;
2. Provide assistance with the knowledge, experience and background of the organization in the management of patients who develop crush syndrome during a possible earthquake (with the knowledge, approval and request of the authority);
3. Develop and contribute to models for the management of chronic dialysis patients in case of earthquake;
4. Develop and contribute to models for the management of patients with kidney transplantation and/or chronic kidney disease in case of earthquake.

Turkish Organization of Renal Disaster Relief Task Force (RDRTF)

In line with the objectives listed above, Turkiye has been divided into 17 regions and Renal Disaster Coordinators have been appointed to each region, with at least one permanent and one substitute. Working under the umbrella of the Turkish Society of Nephrology (TND) and on a completely voluntary basis, these coordinators are composed of nephrology specialists.

Renal Disaster Relief Task Force (RDRTF) members are reviewed and updated every year. In order to achieve the objectives described

above, TND-RDRTF organises in cooperation with local Health Directorates, training meetings for search and rescue teams, including all healthcare professionals as much as possible, to provide trainings on rescue operations, follow-up in the field and medical precautions and treatments required to be taken after arrival at the healthcare institution in order to prevent kidney damage associated with crush syndrome.

When an earthquake occurs anywhere in our country, the Renal Disaster Coordinator responsible for that region receives information about patients with crush syndrome and mobilises locally to provide necessary support in the follow-up of these patients. The purpose of redundancy is to be prepared for the possibility that the first responsible person may be a victim of the earthquake. TND-RDRTF has a Disaster Coordinator responsible for the whole team. The Renal Disaster Coordinator in charge also has a previously appointed substitute to replace him/her in case he/she is not heard from within half an hour.

During the earthquakes of Bingöl/Çeltiksu (2003), Van (2011), Elazığ (2020) and İzmir (2020) that occurred after the 1999 earthquake, nephrology specialists in the region were contacted and support was provided for the correct treatment of AKI cases associated with crush syndrome.

Note: The list of Renal Disaster Relief Task Force coordinators is updated from time to time. To access the current list : https://nefroloji.org.tr/tr/renal-afet-yardim-gucu

Appendix

APPENDIX 1 – Code Orange Instruction

The **Code Orange Instruction** has been issued in order to specify the measures to be taken to prevent physical damage to the personnel working with chemical, biological and radioactive substances in the hospital as well as the arrangements to be made in order to start the treatment of patients who are exposed to CBRN agents by decontaminating them in the most systematic and fastest way.

1. OBJECTIVE

It is to decontaminate the patients who are admitted to the hospital as contaminated as a result of use of weapons of mass destruction or chemical, biological, nuclear and radiological accidents in the most systematic and rapid manner, providing necessary medical support. And it is also to assure protection against leakage of chemical or harmful substance.

2. SCOPE

This procedure covers the determination of the precautions to be taken for prevention of physical damage to the personnel in contact with chemical, biological and radioactive substances in the hospital as well as the arrangements to be made for the systematic and rapid decontamination and treatment of patients admitted to the hospital for exposure to CBRN agents.

3. ABBREVIATIONS

CBRN: Chemical, Biological, Radiological and Nuclear Threats
HAP: Hospital Disaster and Emergency Plan
AFAD: Presidency of Emergency and Disaster Management
İL-SAP: Provincial Health Disaster and Emergency Plan

4. RESPONSIBLE OFFICERS

Deputy Chief Physician, Emergency Service Responsible Physician, Emergency Service Responsible Nurse, Technical Unit Responsible, Security Unit Responsible, Civil Defence Supervisor and CBRN Officers.

5. DEFINITIONS

5.1. **Leakage of Chemical or Hazardous Substance:** Chemical substances that may arise in the hospital as a result of accidents and sabotage are solid, liquid, gaseous or aerosolised agents; which are lethal, have injurious and irritating effects, cause fog and fire; and are effective on humans, animals, plants and metals.

5.2. **HAP:** They are plans with standard framework and guidelines developed by the Ministry of Health to improve disaster and emergency management in hospitals, make hospitals physically and functionally prepared and resilient to disasters, and ensure timely, rapid and effective response during disasters in accordance with the plans covering all phases of disaster management at central and provincial level (IL-SAP) of the national health system.

5.3. **CBRN:** It is used as an abbreviation of Chemical, Biological, Radiological and Nuclear word group. In general, this term refers to harmful and dangerous situations for humans and environment caused by the intentional or accidental release of chemical, biological, radioactive and nuclear substances.

5.4. **CBRN Contamination:** Contamination of a certain area, persons, structures, water resources and soil with chemical, biological, radioactive and nuclear substances.

5.5. **Chemical Agent:** All kinds of solid, liquid and gaseous toxic chemical substances used; because of their direct toxic effects on humans, animals and plants; to kill, injure, incapacitate people; to pollute and destroy vegetable and animal food sources and food stocks; to render economically important targets inoperable and to cause chaos and panic.

5.6. **Biological Agent:** Organisms or toxins formed by them to cause disease in humans, plants and animals or damage the materials.

5.7. **Nuclear/Radiological Agent:** All radioactive sources such as uranium and plutonium used to produce nuclear bombs and all radioactive sources that can cause death and injury by emitting radiation are called nuclear/radiological agents.

5.8. **Level-C Protective Clothing:** It is a protective clothing used in cases where hazardous substance is detected, which provides less protection than protective clothin of A and B levels, but provides easy movement in long-term operations.

5.9. **Level-D Protective Clothing:** It is a protective clothing used in situations where the possibility of contamination of the skin by the hazardous substance is minimised and provides a low level of protection.

5.10. **Decontamination:** Cleaning operations carried out to minimise or completely eliminate the effect of chemical, biological, radioactive and nuclear substances that have an effect on persons, vehicles, materials, buildings and areas.

5.11. **Antidote:** Substances that neutralise a poison or destroy the effects of a poison.

5.12. **Toxic Substance:** Chemical substances that cause damage or death by disrupting physiological and biochemical mechanisms in a living organism.

5.13. **Secondary Contamination:** It is cross contamination, i.e. contamination not caused by direct contact with the hazardous substance but by contact with a contaminated person or object.

6. GENERAL PRINCIPLES

- High priority should be given to the safety and security of personnel and essential hospital equipment.
- If toxic substances pose a risk of secondary contamination or if the chemicals involved are unknown, decontamination procedures should be carried out before the contaminated patient is admitted to the emergency service.
- Acute care should be provided to contaminated patients, particularly respiratory support and the use of antidotes, and it, therefore requires reallocation of personnel.
- The possibility of late onset of serious symptoms and chronic health problems should be recognised from the outset.
- Parties to be coordinated:
  - The management of chemical incidents requires effective coordination of the hospital admitting the patient and the first responders.
  - Likewise, effective coordination among the Presidential Crisis Centre, 112 Emergency Medical Services and the Emergency Service should be assured.
  - Those responsible for the logistics and maintenance section of the Incident Management Team should coordinate with those responsible for providing security services with respect to the storage and use of toxic chemicals within the hospital area.

7. OPERATIONAL FLOW:

The main steps of the activity flow in response to CBRN events in the hospital are as follows:

- The Incident Management Team is immediately activated by the President of HAP.
- Hospital personnel are notified with an ORANGE colour code announcement.
- Decontamination procedures should be performed outside the hospital as far as possible (contamination of the Emergency Service should be avoided).
- The management team of decontamination procedures and/or personnel providing acute care to contaminated patients should wear personal protective equipment and strictly follow the instructions of the Incident Management Team and Standard Operating Procedures.
- Special triage procedures applied to CBRN incidents should be fully complied with.
- Care should be taken in the use of some essential medicines that are in limited supply.
- Medical care and symptoms, including those for long-term follow-up targets, are processed and recorded on the CBRN.FR.01 CODE ORANGE INCIDENT NOTIFICATION FORM.

- It is always necessary to inform the patients; however, the information should be provided by healthcare personnel in accordance with the instructions of the Incident Management Team.
- Notification and coordination of the affiliated Presidency, Provincial Health Directorate, AFAD and relevant institutions about the possible risk is managed by the Inter-Institutional Coordination Officer.

7.1. CBRN Response Protocol

a. CBRN Response Protocol is started upon admission of the patients with CBRN-related injuries and patient transfers to the hospital. The authority and responsibility for starting the procedure belongs to the CHIEF PHYSICIAN who is the President of HAP.

b. The authority and responsibility to start CBRN Response Protocol outside working hours and on holidays belongs to the CHIEF ON DUTY and he/she is obliged to inform the CHIEF PHYSICIAN.

c. The detection of a CBRN case is reported by the Emergency Medical Specialist to the Chief Physician of the Hospital during working hours and to the Chief on Duty outside working hours.

d. Following the CBRN notification, the Incident Management Team convenes upon the order of HAP President to consider the situation.

e. The Hospital Disaster and Emergency Plan is fully or partially activated and implemented by HAP President according to the situation.

f. Hospital personnel are informed by issue of CODE ORANGE announcement.

g. The Chief Physician/Chief on Duty informs the Crisis Centre of the Directorate of Public Hospitals Services of the Provincial Health Directorate about the incident. Police forces are contacted and the incident is reported. In case of any contamination in the Emergency Service, Command Control Centre 112 is contacted and emergency referrals are made to the surrounding hospitals.

h. In case of a possible CBRN incident, the decontamination unit is checked and opened by the Emergency Service Responsible Nurse during working hours and by the shift nurse outside working hours.

i. In case of a possible CBRN incident, the parking lots of the hospital is checked by the Security Supervisor to ensure that these areas are ready for service.

7.2. Calling to Duty

In case of CBRN-related admissions, first of all the personnel who have received CBRN Awareness Training (contact addresses are available in the switchboard and in the bag of nurse on call of the hospital) are called to duty by the hospital supervisor (senior supervisor) nurse. The relevant personnel is called to duty by the hospital switchboard personnel.

7.3. Safety Precautions and Reception

7.3.1. When CBRN Response Protocol is started, the front of the Emergency Service is closed to CBRN cases by the security guards and a safety tape is used.

7.3.2. The Decontamination Unit has an entrance on the right along the hospital emergency ambulance road, independent of the Emergency Service. The exit from the Decontamination Unit is into the Emergency Service. After patients leave the Decontamination Unit, they are taken to the OBSERVATION area coloured with orange tapes 120 m ahead of the corridor on the right side and their treatment is continued there.

7.3.3. All entrances of the hospital are taken under control by Security Personnel.

7.4. For Prevention of Secondary Decontamination

7.4.1. IN CASE OF CBRN CASES NOTIFIED: The injured persons who are decontaminated in the Decontamination Unit are taken to the previously designated OBSERVATION area that serves for CBRN cases.

7.4.1.1. Room entrance and exit doors are closed and the clinic is isolated and entrances and exits are taken under security control.

7.4.1.2. Protective Equipment; Healthcare teams entering the Decontamination Unit for response wear C-type protective equipment. Personnel who will provide patient transfer and personnel in the observation area wear D-type clothing. Those without protective equipment are not allowed to enter into these areas.

7.4.1.3. Food, beverages and consumables in areas and rooms contaminated with CBRN cases are considered contaminated and disposed of in the same procedure as contaminated materials.

7.4.2. **IN CASE OF UNREPORTED CBRN CASES:** All entrances and exits of the clinic are closed for cases detected in the Emergency Service. Traffic of other patients is stopped in the previously specified areas of lifts and stairs. Passage from the Emergency Service to other units and passage from other units to the Emergency Service are prevented. A Security Officer designated by the Security Chief is kept waiting in front of the exit door to prevent exit from the Emergency Service to the inpatient clinics. All individuals present in the Emergency Service at that moment are considered contaminated. Health personnel who encounter the patient are also subjected to decontamination and isolation. Emergency case admission of the hospital is completely stopped and only CBRN cases are accepted. The security officer at the entrance to the hospital makes sure emergency cases other than CBRN are directed to other hospitals.

7.4.2.1. The observation area used for medical treatment of cases detected in the Emergency Service is closed to all cases other than CBRN.

7.4.2.2. Protective Equipment: Healthcare teams entering the Decontamination Unit for response wear C-type protective equipment. Personnel who will provide patient transfer and personnel in the observation area wear D-type clothing. Those without protective equipment are not allowed to enter these areas.

7.4.3. Food, beverages and consumables in areas and rooms contaminated with CBRN cases are considered contaminated and are disposed of in the same procedure as contaminated materials.

7.5. Patient Identification, Notification to the Relatives of the Injured and Communication between Institutions and Organizations, and Institutions to Be Cooperated With

7.5.1. For the identification of CBRN cases, there is 1 camera-recorder in the room of Chief on Duty in the hospital and the image recording of the patients is taken with the camera system at the entrance of the Decontamination Unit. After the decontamination process, identification is made with a patient wristband.

7.5.1.1. The task of taking photographs for **IDENTIFICATION** belongs to the data entry personnel of the Emergency Service; the task of taking photos is carried out based on the entry order of each patient admitted to the CBRN unit. If the body integrity of the patient is complete, minimum 4 (four) photographs showing the full body photograph, close-up of the patient's face, the patient's wounds and the patient's clothes/accessories should be taken. If the body integrity is not complete, the limb detached from the patient should also be photographed. Every development, every response given, every decision taken and implemented, all communication operations from the moment of admission are noted on the relevant forms (Code Orange) with date and time information. These forms are noted and recorded at any time by a person assigned by the Chief Physician/Chief on Duty.

7.5.2. The list of patients for informing their relatives is legibly posted at the Outpatient Entrance of Emergency Service.

7.5.3. The Governor shall inform the press and no one may give information to the press without the permission of the Governorate.

7.6. Decontamination

7.6.1. Protective Equipment: C-type protective suit, full face mask, suitable filter, boots (special for CBRN cases) and gloves (inner and outer gloves special for CBRN case) are used.

7.6.2. The injured person taken to the changing room located at the entrance of the Decontamination Unit is undressed by the officer wearing C-type clothing before the procedure. His/her personal belongings are packed separately in sealed bags under the supervision of the emergency shift nurse and the forensic officer and delivered to the forensic officer with a report. Outside working hours, this duty is performed by the shift nurse and the officer on duty. The clothes on the patient are taken into garbage bins with minimum 2 medical waste bags and packed in a leak-proof manner. All items removed from the patient are delivered to the security officers by the judicial officer/shift officer together with report.

7.6.3. After the undressing process is over, the injured person is taken to the washing department (by at least 1 officer), washed with appropriate solution (soapy water, etc.) to cover the entire body surface and, if necessary, with a soft sponge without rubbing and dried at the exit of the decontamination unit (by at least 1 officer) and dressed after the procedure.

7.7. When CBRN Casualty Transport/Injured Evacuation Is Required

7.7.1. When procedures (treatment, medical diagnostic, etc.) that cannot be performed within the hospital are referred to the relevant institutions, they are performed with the equipped personnel and ambulances of Emergency Health Services 112 in accordance with the referral process.

7.7.2. When it comes to the transfer of CBRN injured, it is done by informing the referred institution through 112 Emergency Health Services and ensuring controlled transfer in accordance with ASKOM (Emergency Health Services Coordination Commission) rules.

7.7.3. ONE VEHICLE is kept ready for use considering the situations where the need for inter-institutional transport may arise, and it is put into use to meet the urgent needs together with the personnel wearing necessary protective equipment and making the necessary arrangements inside the vehicle.

7.8. Medicines, Devices and Materials

CBRN warehouse list and hazardous waste inventory are followed up under the responsibility of the pharmacist on duty/on-call and warehouse officer. Deficiencies arising at the time of the incident are met under the coordination of the Directorate of Public Hospitals Services Crisis Centre.

7.9. Samples Taken and Analyses to Be Performed, Transport of Samples

7.9.1. Hospital laboratories are used for tests that can be performed in the hospital.

7.9.2. For the necessary studies of the medical diagnostics s that cannot be performed in the hospital, the samples taken under the coordination of the Public Hospitals Services Directorate Crisis Centre are prepared for transfer to the referred institutions by taking the necessary precautions for transport and transfer of the samples and the samples are delivered with a report.

7.10. Support Services

.10.1. For safety and security measures in case of any CBRN incident, the Administrative and Financial Affairs Manager and hospital security personnel are on duty during working hours, and the duty officer and hospital security personnel are on duty outside working hours.

7.10.2. For inter-institutional cooperation, the Inter-Institutional Coordination Officer assigned to HAP operates. The Inter-Institutional Coordination Officer contacts the relevant institutions in line with the decision of the HAP President (Provincial Health Directorate, Emergency Health Services Branch 112, Provincial Ambulance Service Chief Physician, National Poison Advisory Centre 114, Metropolitan Municipality, Beyoğlu Police Station, Beyoğlu Fire Station, ISKI General Directorate, Turkish Energy, Nuclear and Mineral Research Agency and other relevant institutions).

7.10.3. A psychiatrist or psychologist at the hospital shall be on duty for the psychological support of patients, relatives and personnel.

7.10.4. Technical operation and responses are performed by Administrative and Financial Affairs Manager, Technical Service and Biomedical Technicians work during working hours. Outside working hours, the officer on duty, Technical Service Personnel and Biomedical Technicians shall take over the duty.

7.10.5. Medical waste and hazardous waste water arising from decontamination are disposed pursuant to the Waste Disposal contract made with ISTAC Istanbul Environment Management Industry and Trade Company Inc. Officer in charge of Hazardous Waste follows up the process in coordination with the Administrative and Financial Affairs Directorate.

7.10.6. Arrangements for deceased patients: The body is kept in the morgue using double funeral bags, and when the capacity is exceeded, they are taken to the cold storage or designated areas under the coordination of the Public Hospitals Services Directorate Crisis Centre.

7.10.7. Procurement in emergency is coordinated by the Directorate of Administrative and Financial Affairs and provided under the coordination of the Directorate of Public Hospitals Services Crisis Centre.

7.11. Planning of Training: Repeated AT LEAST twice a year

7.11.1. The professional group to receive training: CBRN officers, particularly emergency service personnel, unit supervisors and employees of the clinics are obliged to participate in the training.

7.12. Decontamination of Persons Who Do Not Want Decontamination

The process of decontamination of persons who are affected by CBRN agents but do not want to be decontaminated: The law enforcement officers are notified and action is taken in accordance with the rules specified in the section of the Public Hygiene Law on infectious diseases.

8. RELATED DOCUMENTS

8.1. Code Orange Incident Notification Form

8.2. Incident Notification Form

8.3. Algorithm for Approach to Chemical and Biological Threats, Ministry of Health

8.4. Hospital Disaster and Emergency Plan

Glossary

Assembly Area: It is the area where the personnel will be counted and necessary instructions will be given in case of an emergency.

Crush Syndrome: Crush injury resulting from prolonged compression and immobility. There is significant tissue damage and muscle necrosis. Excessive crushing of the muscles may progress to a process that may result in death if rapid and effective treatment is not given.

Disaster Management: It is the process of total struggle to be carried out by the society in order to prevent disasters and minimise their damages, respond to the events resulting in disasters timely, rapidly and effectively and create a safer and better new living environment for the communities affected by the disaster.

Disaster Preparedness: The process in which activities such as planning, training, drills, establishment of early warning systems, emergency aid material stocks, informing and raising awareness of the public, which should be carried out before the disaster in order to respond to disasters in a timely, fast and effective manner, are carried out continuously and sustainably.

Disaster Response: The general name given to all activities starting immediately after the occurrence of the disaster and carried out within a period of 1-2 months depending on the magnitude of losses and damages caused by the disaster.

Disaster: It is an incident caused by nature, technology or human which leads to to physical, economic and social losses for the whole or certain parts of the society, stops or interrupts normal life and human activities, and the coping capacity of the affected society proves to be insufficient. Disaster is not an incident itself, but the result of it.

Emergency Management: It is a management process that aims to meet all the needs of the affected communities in a timely, fast and effective manner, starting immediately after the occurrence of an emergency. It is a form of management that is not continuous but starts with the occurrence of an event considered as an emergency and ends when the causes of the emergency are eliminated.

Emergency Planning: It involves all activities that require the planning of the works and transactions that need to be carried out to save human life and property and other activities with the least loss and damage from the consequences of extraordinary incidents before the incident occurs and are implemented in a timely, fast and effective manner during the incident.

Emergency Preparedness: Refers to the process in which activities such as planning, training, drills, establishment of early warning systems, stocking of emergency aid materials, informing and raising awareness of employees, which should be carried out in advance to respond to emergencies in a timely, fast and effective manner, are carried out continuously and sustainably.

Emergency: All situations and circumstances which require urgency on a scale that is large but generally can be handled by local means. Law No. 5902 defines it as "incidents that stop or interrupt the normal life and activities of the whole or certain parts of the society and require emergency response and the crisis situation created by these incidents".

Evacuation Plan: A detailed plan showing the ways and means by which the evacuation process is performed and the places where people will be transported in case of disasters and emergencies.

Evacuation Route/Way: Previously designated and marked transportation route in order to remove people safely from dangerous areas in disasters and emergencies.

Evacuation: Within the scope of disaster and emergency and civil protection services, the process of evacuating structures or an area that needs to be evacuated by using predetermined routes in a fast and orderly manner and transferring people and living beings to safe places.

Event: The situation that occurs; any kind of work, incident, case that attracts or may attract attention.

Haemodialysis: It is the name given to the return of the blood taken from the patient using a suitable vascular access route called fistula, graft or catheter to the patient by regulating the liquid and solute (dissolved substance) content while passing through a filter called dialyser with the help of a machine and pump.

Horizontal Evacuation: It is the transfer of people in disaster and emergency to the nearest safe place on the same floor level, for example, to the fire-protected part or outside area.

Intubation: It is the process of placing a special tube into the respiratory tract (trachea) through the mouth or nose with the help of laryngoscopy (laryngeal examination instrument) or special devices in order to switch to artificial respiration to protect the airway, provide continuous ventilation, and administer medication if necessary, in case the safety of breathing or respiratory tract is impaired or there is a risk of impairment.

Mitigation Planning: A dynamic and participatory planning process that combines development objectives with mitigation objectives by addressing strategic planning at the country, regional, provincial and settlement levels in order to create a society with reduced disaster damages and increased coping capacity and quality of life.

Mitigation: All structural or non-structural precautions and actions to be taken before, during and after disasters to prevent natural, human and technological hazards and environmental degradation from causing disasters or reduce their impacts. These activities are long-term studies that require many institutions and organizations and various disciplines to work towards a specific target. In practice, the mitigation phase starts with the activities in the recovery phase and continues until a new disaster occurs. The actions performed in this phase have a wide range of applications at the scale of country, region and settlement unit.

Necrosis: The death of living tissue or cells in tissue. It may be caused by external factors such as infection, toxin or trauma.

Nephrology: It is a branch of internal medicine that deals with the health and diseases of the kidneys and is a field of practice of one of the internal medical sciences. It may also be called kidney disease medicine/specialisation.

Psychosocial Support: Psychosocial literally means the dynamic relationship of psychological and social effects that continuously affect each other. Psychosocial support in disasters is a set of multidisciplinary services carried out at every stage of the disaster cycle; including prevention of psychological maladjustments and disorders that may arise after the disaster; re-establishment/development of relationships at family and community level by enabling those affected to realise their own capacities and empowerment in the process of returning to their "normal" lives; increasing the coping/recovery/recovery skills of the community to cope with disasters and emergencies likely to occur in the future and supporting aid workers.

Public Road/Area: A public road/area is a road or area open and accessible to the public in general. Roads (including pedestrian pavements), city squares, parks and beaches are generally considered as public areas.

Recovery: It involves all legal, institutional, physical, social and economic activities that should be performed to meet the needs of the communities affected by disaster and emergency with the most rational ways and methods, return life to normal as soon as possible, improve their ability to cope with possible disasters and create a safer living environment to ensure they are minimally damaged.

Refuge Area: An area designated at a distance or shelter where people will not be affected by the negative consequences of disasters and emergencies.

Rehabilitation: It is the treatment, care and training activity applied to eliminate the disability or disease of an individual that prevents him/her from doing work and to bring him/her to a state that allow he/she to function and/or work.

Renal: Of and related to the kidney.

Response: Intervention and assistance during or immediately after an emergency to protect the lives of affected people, meeting their basic needs and livelihoods.

Safe Place: A place designated at a distance or in a shelter where people will not be affected by the negative consequences of disasters and emergencies.

Triage: Determination of medical response priorities in disasters and emergencies. These priorities are determined according to factors such as the patient's chance of survival or the urgency of the situation.

Vertical Evacuation: In disasters and emergencies, the transfer of people to the nearest safe place on a different floor level, e.g. to a fire-protected section or outside area.

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